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Referring Forms And Cognitive Status In Non-Narrative American Sign Language Texts

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REFERRING FORMS AND COGNITIVE STATUS IN NON-NARRATIVE AMERICAN SIGN LANGUAGE TEXTS

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Name: Tamara Michelle Grosso
Date: 8 November 2017

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LIST OF ABBREVIATIONS

∅	null
1	first person
2	second person
3	third person
ADV	adverb(ial)
ASP	aspect marker
CL	classifier
COMP	complementizer
DET	determiner
DU	dual
FS	fingerspelling
GES	gesture
IX	index
NEG	negation, negative
PL	plural
POSS	possessive
PRO	pronoun
Q	question particle/marker
REFL	reflexive
SG	singular

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ABSTRACT

In their work on referring expressions and cognition, Gundel et al. (1993) propose a model called the Givenness Hierarchy which suggests that there are basic referring expressions in languages which can signal the cognitive status of their referents. Supported by cross-linguistic research, the theory proposes six cognitive statuses which have forms associated with them such that if that form is used (successfully), the referent must have at least that status on the scale. In 2002, Swabey published a doctoral dissertation researching the Givenness Hierarchy for American Sign Language (ASL) in narrative texts. She compared the distribution of referring forms cross-linguistically (between ASL and English). She also proposed form-status correlations based on her research.

This study adds to Swabey's work by analyzing referring forms and form-status correlation in ASL texts from a non-narrative genre. These non-narrative texts, found in political monologues posted to YouTube, have a variety of referents that are not necessarily present in narratives, such as ideas, speech acts, and propositions.

One of the challenges of work on referring forms in ASL is establishing the categories of these forms. In their work on reference tracking, Frederiksen & Mayberry (2016) expanded the referential categories proposed by Swabey to look at the effect of word order, fingerspelling and other referring strategies on the discourse use of referring expressions. This study adopts the categories proposed by Frederiksen and Mayberry with a few additional categories from Swabey, which are not found in Frederiksen & Mayberry (2016).

The results of this study support many of the claims made by Swabey (2002) as well as propose a revision to one form-status correlation. This study also gives the cognitive status correlations of two forms which were not mentioned in Swabey (2002). The study also furthers the descriptions of discourse usage of referring expressions in ASL. Finally, the addition of a non-narrative genre to discourse analysis of ASL texts shows that the

claim by Swabey (2002), and Frederiksen & Mayberry (2016) that ASL disfavors the use of pronouns, is true for narratives, but not necessarily for other texts.

CHAPTER 1

INTRODUCTION AND BACKGROUND INFORMATION

1.1 Introduction

Referring expressions range from extremely specific descriptions to phonologically-minimal procedural forms in all languages. The apple on my desk can be referred to as "the apple on my desk," "that apple," "that" accompanied by a co-speech gesture pointing to the apple and a variety of other expressions depending on the speaker's intent. The speaker often tries to pick the referring expression which provides the most salient information and also requires the least amount of processing effort. In each language, there are forms which can help signal to the addressee the cognitive status of the referent, which can then aid the addressee in picking out the referent. The Givenness Hierarchy is the model proposed by Gundel et al. (1993) which connects referring expressions with the cognitive status of the referent.

The Givenness Hierarchy is applicable cross-linguistically, but each language must be analyzed individually to establish which forms correlate to which cognitive statuses within that language. The model proposes that there are patterns cross-linguistically, but no universal truth that, for example, the proximal demonstrative determiner will signal a certain cognitive status in every language. In 2002, Laurie Swabey published her dissertation analyzing American Sign Language (ASL) with the Givenness Hierarchy model. Later, in 2011, she published a chapter in a journal summarizing that dissertation. Her work focuses on narrative texts, though most of the work done in the Givenness Hierarchy uses multi-genre corpora.

The current study expands the analysis of ASL within the Givenness Hierarchy model by utilizing a group of non-narrative texts-- specifically, monologues related to American

political discourse. These texts add to the study conducted by Swabey (2002) to help create a more diverse corpus. This study proposes new forms which correlate with certain cognitive statuses as well as proposes a change to a previously proposed form-status correlation. This study also describes categories of referring forms found in ASL.

According to the Ethnologue (Simons & Fennig 2017), American Sign Language (ISO 693-3 'ase') is primarily used in the United States of America and Canada. There are 250,000 users in those two countries and an unknown number of users worldwide, due to a difference in varieties, some of which may be separate languages derived from ASL. It was descended from French Sign Language, and there is a 58% lexical similarity between the modern languages. ASL has been classified as a developing language and given a 5 on the EGIDS scale.

1.2 The Givenness Hierarchy

In their seminal work on referring expressions and cognition, Gundel et al. (1993) propose a model called the Givenness Hierarchy which claims that there are basic referring expressions in languages which can signal the cognitive status of their referents as part of their conventional meaning. When a form signals the level of cognitive status, it aids us in picking out the intended referent--even in cases of underspecified referring forms, when the referent might otherwise be ambiguous (Gundel et al. 1993:274). The theory proposes six cognitive statuses in an implicational hierarchy: In Focus, Activated, Familiar, Uniquely Identifiable, Referential, and Type Identifiable. These six statuses may have specific forms associated with them in a given language such that if that form is to be used (successfully), the referent must have at least the cognitive status associated with the form. That is, the referring expression may also be used with a referent at that status or any status higher (towards “In Focus”) on the scale. Table 1 shows the hierarchy of statuses and their correlation with referring forms in English (Gundel et al. 1993:275). The Givenness Hierarchy assumes unidirectional entailment such that any referent that meets the criteria for one status, must also meet the requirements for all statuses lower in the hierarchy (Gundel et al. 2010:1783). For example, if a referent is Activated, it must also meet the necessary conditions for being Familiar, Uniquely Identifiable etc. The

model also assumes that forms are underspecified for higher statuses. In other words, any form that signals at least Activated may be used for a referent that is In Focus or Activated, but not for a referent that is at most Familiar (Gundel et al. 1993:294).

Table 1. The Givenness Hierarchy with English examples

In Focus >	Activated >	Familiar >	Uniquely Identifiable >	Referential >	Type Identifiable
it	*that*; *this*; *this* N	*that* N	*the* N	indefinite *this* N	*a* N

There are cross-linguistic correlations in the pairing of categories of forms and statuses in the sense that minimally coded forms tend to be used for the more restrictive (In Focus and Activated) statuses and more semantically rich forms tend to correlate with less restrictive statuses (Gundel et al. 1993:285). There are also tendencies for certain forms (demonstrative pronouns, pronouns or articles) to correlate with certain statuses cross-linguistically, though there is more variation for some forms, such as the demonstrative determiner and the indefinite article (Gundel et al. 1993:285). Broadly speaking, unstressed pronouns, clitics and nulls tend to correlate with In Focus, and demonstrative pronouns as well as stressed pronouns tend to signal at least Activated (Gundel et al. 1993:285). Demonstrative determiners tend to range from signaling Uniquely Identifiable to signaling Activated (Gundel et al. 1993:284). Definite articles, when they exist in the language, tend to signal Uniquely Identifiable (Gundel et al. 1993:284). Indefinite articles tend to require only referents that are Type Identifiable, but languages differ in how they restrict the use of indefinite articles (Gundel et al. 1993:289). These are patterns found cross-linguistically, but are not proposed as rules within the model.

Research on this model has been conducted across several language families including English, Chinese, Japanese, Spanish and Russian (Gundel et al. 1993); ASL (Swabey 2002, 2011); Irish (Mulkern 2003); Turkish and Persian (Hedberg et al. 2009); Ojibwe, Eegima, Kumyk, and Tunisian Arabic (Gundel et al. 2010) with Kumyk (Humnick 2009) and Tunisian Arabic (Khalfaoui 2009) being described further in dissertations. Predictions that have held true cross-linguistically thus far, are that all languages have forms which signal In Focus and Activated as part of their conventional meaning, but not all languages

have forms that signal all statuses. If there are forms in a language which correlate to less restrictive statuses (e.g.Type Identifiable), Gundel et al. (2010:1783) claim that there will also be forms which correlate to the more restricted statuses, though counterexamples to this hypothesis would not necessarily challenge the validity of the model.

1.3 The Givenness Hierarchy and ASL: Swabey 2002

In 2002, Swabey published her dissertation on a comparison of referring expressions and cognitive status for narrative ASL texts and English texts. She collected narrative retellings from ASL users and English speakers based off the wordless book *Frog, Where are You?* (Mayer 1969).

Swabey provides the distribution of the statuses coded for referents using the referring forms: null argument of plain verbs, null arguments of agreement verbs (what she calls indicating verbs), null arguments of constructed action and null arguments of classifier predicates, grouped together as null arguments (∅), pronominal indexing (IX-PRO),[1] 'that', noun phrases with index determiners (IX-DET N), noun phrases with 'something/someone' or 'one' ('something'/'one' N), and bare noun phrases (∅ N) (Swabey 2002:110) (see 2.3 for more detail). It seems clear from her research that she considered other categories[2] of referring forms, but either grouped those forms with her existing categories or excluded them from consideration. These form-status correlations for ASL proposed by Swabey (2002:88) are presented in Table 2.

[1] IX-PRO is the pronominal usage of indexing in ASL (a feature which is described in section 2.1.4.) IX-DET is the label used for indexing which functions as a determiner in ASL. Swabey labels all pronouns IX-PRO, but includes other forms which would not normally be labeled index (i.e. dual, possessive etc.) (Swabey 2002:110).

[2] *Categories* are used to refer to the grouping of referring expressions with like characteristics for the purpose of this study.

Table 2. Swabey's proposed form-status correlations for ASL

Cognitive Status	**Form**
In Focus	∅, IX-PRO (and other unstressed pronouns)[3]
Activated	'that'
Familiar	IX-DET N
Uniquely Identifiable	
Referential	
Type Identifiable	'Something/one' + N, ∅ N

Swabey's proposed form-status correlations fit well with the predictions of the Givenness Hierarchy that the most minimally coded forms correlate to In Focus, and the more semantically rich forms correlate to less restricted statuses. In her data, null arguments signal In Focus, indexing pronouns signal In Focus as well, the demonstrative pronoun ('that') signals at least Activated and the definite determiner (IX-DET N)[4] signals at least Familiar (Swabey 2002:49, 100). She does not find a form that correlates with Uniquely Identifiable or Referential which patterns after other languages with optional indefinite article usage (Gundel et al. 1993:290).

One area of research Swabey felt needed to be expanded in future work, is the effect of the grammatical use of space in ASL on referring expressions and the cognitive status of referents (Swabey 2002:147). While my thesis does not focus on the role of space in referring forms and cognitive status, many of my observations from this study do help to show a more complete picture. Another issue is that there are a few categories of referring forms that occur infrequently in her data (Swabey 2002:149). Though, she was able to formulate strong hypotheses for form-status correlations based on her results, more data will make these results more conclusive. My data provides more tokens of the vaious categories of referring forms, which helps to more accurately portray the form-status correlations.

Swabey's data comes from retellings of the same narrative in ASL and English which suited her purpose of comparing the referring forms of ASL to English. The design of the study however, limits the referring expressions used by restricting the scope of what

[3] Swabey includes singular and plural personal pronouns in her description of the pronoun category, but makes no mention of other types of pronouns with the exception of the demonstrative pronoun which she proposes signals Activated.

[4] The present study, claims, in contrast, that IX-DET N signals Uniquely Identifiable, as discussed in section 4.3.1.

can be referred to within the data. Since all the narratives are of the same general story, the referring expressions used would be of a similar nature. There are differences in the pattern of referring expressions used in each discourse genre which can be explored for ASL using the Givenness Hierarchy. For example, according to Longacre (1983:8), narrative discourse is characterized by first or third person pronouns and expository discourse tends to use third person pronouns and deictics. Adding data from another genre varies the types and frequencies of referring expressions found in the data.

One limitation of Swabey's methodology, as well as my own research, is that neither of us included questionnaires testing speaker judgements of these forms with their proposed cognitive statuses. The role of speaker judgements in testing the form-status correlations is set forth in Gundel et al. (2010:1779).

1.4 SignWriting Explanation and Transcription Conventions

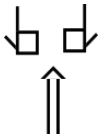
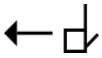
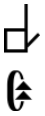
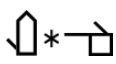
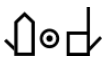
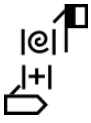
In this thesis, SignWriting is used to transcribe the language data. Due to copyright issues, I am not able to provide screenshots from the videos, so transcription is the next best option. I transcribe using SignWriting in the hopes that even if someone does not know the SignWriting system, the pictures may be graphic enough to clarify important points. Often as I read literature on signed language linguistics, I find myself unable to visualize the example, even if I know the language. Using modified English glosses to describe ASL is often not effective enough to prove the author's point. Though SignWriting is not widely used, the limitations of English glossing make using some type of a transcription system extremely desirable.

SignWriting is a transcription system which utilizes symbols for handshapes, motions, locations and facial expression to transcribe the sign. Like the IPA, it can be extremely detailed or very broad. In this thesis, my transcriptions include enough phonetic detail for it to be understood, but certain things like hand dominance, or facial expressions not pertinent to the example are left out.

I will very briefly summarize the system used in this study, which is illustrated in Table 3. SignWriting is written from the signer's perspective. There are three planes of motion: parallel to an imaginary wall in front of the signer (vertical), parallel to the floor

(horizontal) and parallel to an imaginary wall to the side of a signer (mid-sagittal). The arrows indicate which plane the movement occurs on. For movements on the vertical plane, the tail of the arrow is two lines. For movements made along the horizontal plane, the tail is one line. For movement along the mid-sagittal plane, the tail has a thicker band to indicate the placement of the body relative to the movement. The thicker band will be at the head of the arrow for movements going towards the body, and at the tail of the arrow for movements directed away from the body. If the arrow represents the movement of the right hand, the head of the arrow is a black triangle. If the arrow represents movement of the left hand, the head of the arrow is a white triangle. If the arrow represents the movement for both hands, the head is just two lines, not the full triangle.

Table 3. SignWriting illustration

 palm facing signer	 palm facing away from signer	 palm facing left side	 palm facing left side thumb pointing towards ceiling	 palm facing ceiling	 palm facing floor
 movement forward (right hand)	 movement up (both hands)	 movement left (right hand)	 circular movement parallel to front wall (left hand)	 circular movement parallel to floor (right hand)	 circular movement mid-sagittal (right hand)
 touch	 rub	 brush	 strike	 grab	 grab in between (bottom) rub in between (top)

For handshapes, there are many different symbols iconically representing different finger positions. Orientation is indicated by shading on the handshape symbol. Hands are

black for the signer looking at the back of their hand, white for the palm and black and white if the side of the hand faces the signer. If the fingers are written with a small gap between them and the body of the hand, this indicates horizontal orientation with palms up (white) or down (black). There are symbols for touch, rub, brush, strike, grab and going between fingers. There are other symbols for various other possible configurations, locations on the body and facial expressions, but it would be impossible to explain every symbol. For more information on SignWriting see (Sutton 1996).

In this chart the "L" handshape is shown as the dominant hand and the "flat" handshape is depicted as the non-dominant hand (except when both hands move together in this chart). None of these illustrate actual signs and many would be very awkward in real life; the point is to illustrate the notation. The "in between" symbol is simply the type of contact between two bars, and therefore, there are two symbols in the last cell to demonstrate the versatility of this symbol.

In an effort to make my thesis accessible to a wider range of possible readership, I have presented examples using the Leipzig Glossing Rules (Comrie et al. 2015) instead of glossing conventions specific to signed languages, with a few modifications. I am using the conventional capitals and hyphens for fingerspelled words such as F-I-N-G-E-R-S-P-E-L-L. For lexicalized, fingerspelled words, I use the # sign accompanied by capital letters illustrating the letters signed e.g. #FS, as is common in the literature.

SignWriting is typically written vertically, top to bottom, but in interlinear text, it is better presented left to right, as in English. The exception is that some signs may be compounds and may require the second part to be written underneath the first part.

1.5 Purpose

The goal of my research is to add to Swabey's work on the form-status correlations for ASL in the Givenness Hierarchy by analyzing referring forms in a corpus of texts from a non-narrative genre. My text corpus consists of political monologues from voters in ASL. My texts seem to be a blend of the expository and hortatory genres according to the descriptions by Longacre (1983:8). These texts have a variety of types of referents, in the form of ideas, speech acts, and propositions, many of which were not present in

Swabey's data due to the difference in discourse genre. The addition of texts from a second genre to the literature on the Givenness Hierarchy with ASL, increases the accuracy of the correlations and extends the knowledge of referring forms for ASL.

The Givenness Hierarchy tends to focus on pronouns and determiners as those are typically the referring expressions whose forms signal the cognitive status as a part of their lexical meaning (Gundel et al. 2010:1770). Some referring expressions can be categorized together, but do not have forms which signal cognitive status as part of their lexical meaning such as bare nouns. Bare nouns, such as *cat*, do not signal anything as the form does not necessarily give procedural information which would signal to the audience the cognitive status of the referent. ASL has a myriad of categories of referring expressions unique to the signing modality such as multiple categories of minimally coded or null referencing (classifier predicates, plain verb, agreement verb, constructed action etc.), making it important to decide beforehand which categories to study. Swabey separates some of these categories in her work, but the categories which she did not find to signal cognitive status, such as noun followed by a classifier (N Classifier) or noun followed by an adverbial index (N IX-ADV), were omitted from her distribution charts and results (Swabey 2002:48, 84. 88). In my analysis, I start with a broader look at referring forms (based on the work of Frederiksen & Mayberry (2016)) so that I can eliminate forms which did not signal cognitive status based on my own data. I began by coding 40 categories of referring expressions which have been reduced to the forms which can be said to correlate to a status. Some categories are not proposed as forms correlating to a cognitive status in ASL, but are described in detail to give a broader understanding of referring expressions in ASL.

In chapter 2, I describe different referring expressions and discourse strategies unique to ASL. I also describe the categories of referring forms I look at for my study. Chapter 3 outlines my methodology and compares the coding protocol I use with the guidelines used in Swabey (2002). I also explain some of the issues and challenges in coding the data. Chapter 4 presents the results and presents both representative samples of the coded data and a discussion of exceptional cases. It also presents categories of referring forms which were removed from the study and my reasoning for doing so. Chapter 5 compares my

results to Swabey (2002) and gives suggestions for future research. My full distribution of forms, as well as the distributions of each individual speaker, appear in the appendices. Information about the videos in my corpus is also included in the appendices.

CHAPTER 2

REFERRING EXPRESSIONS OF ASL

The purpose of this chapter is to explain terminology and conventions used in this thesis which are specific to the study of American Sign Language. It looks at the contributions of reference tracking studies like Swabey (2002) and Frederiksen & Mayberry (2016). It will explain specific features of ASL as well as the categories of referring forms tracked in this study.

2.1 ASL Features

Given that a number of features in signed languages behave differently than spoken languages, the first part of this section aims to briefly describe some of the most pertinent linguistic features of ASL that are useful for understanding this thesis. These referring forms, features and strategies are described in sections 2.1.1-2.1.4.

2.1.1 Spatial Agreement

The literature on spatial agreement is robust, but of particular importance to this thesis is the fact that ASL is a language that makes frequent use of space as a grammatical feature. Some transitive and ditransitive verbs can be modified to include spatial references to the subjects, objects and indirect objects into their morphology (Sandler & Lillo-Martin 2006:24). These verbs are called agreement verbs, but are also known as pointing verbs or indicating verbs (Liddell 2003). Many of the null referring expressions in my corpus utilize this type of spatial agreement.

Spatial "agreement" is not limited to agreement verbs. My data also includes plain verbs which have spatial agreement incorporated into them. These verbs are called plain verbs because they are not normally inflected for subject or object; however, plain verbs

may still be manipulated by the signer to associate them with spatial referents (Sandler & Lillo-Martin 2006:31). Also, ASL uses spatial agreement in non-verbal predicates, which do not require copular verbs. For example, an attributive clause can be expressed by a combination of an adjective phrase and spatial agreement. These non-verbal predicates, thus, have arguments that are implicit in the spatial agreement whose referents can be coded according to the protocol. Constructed action and classifier predicates also utilize space in their constructions.

Spatial agreement also allows for simultaneous referencing (Liddell 2003:207). It is possible for signs and classifiers to be manipulated so that two things are referenced simultaneously without being referenced as a group (Liddell 2003:207). This is different from transitive and ditransitive verbs referencing their subject and object through the course of one sign. Simultaneous referencing utilizes space, often through the use of both hands, to make a reference to two entities at the same time (Liddell 2003:207). More on this will be discussed in 3.4.2.

Frederiksen & Mayberry (2016) include instances of spatial agreement as a category of null argument, and Swabey (2002) does not fully separate spatial agreement from nulls in her results. I have therefore, adopted the label of null for this thesis. However, use of space is best analyzed as separate spatial referencing, rather than simply an instance of null reference or zero anaphora. The referencing system, in the case of spatial manipulation does provide some information in relation to the referent. In fact, some studies consider this to be pronominal agreement in the verb morphology (Lillo-Martin 1986 & Swabey 2002). Future work on referring expressions should separate these referring strategies as there are important qualities which distinguish them and may influence the results of the study.

2.1.2 Constructed Action

In spoken languages, people use the terms *reported speech* or *constructed dialogue* to refer to a conversation that is reported within a text. ASL also has this discourse feature. In ASL, constructed dialogue may or may not have a lexical speech orienter, and the

signer changes facial expressions to represent affect, as well as turn taking between speech participants within the constructed dialogue (Metzger 1995:262).

ASL also has a feature called *constructed action* (Metzger 1995:256). Constructed action is similar to constructed dialogue in that the person takes on characteristics or mannerisms of the person to represent the actions of the person (Metzger 1995:256). Constructed action, also called *role shifting* in the literature, has been described as having two types. Fixed spatial marking is what is traditionally known as *body shifting*. This is a discourse device for switching perspectives by rotating the torso or head to indicate which vantage point is being portrayed (Janzen 2012:156). These shifts prototypically correspond to conversation participants' physical perspectives in conversation (Janzen 2012:156). Janzen (2012) uses the term *fixed spatial marking* to delineate from what he calls *mentally rotated space*, which is also considered a form of *role shifting*. He defines the latter as cases in which "the conceptualized space is mentally rotated so that interactants' vantage points in a narrative passage are aligned with that of the signer" (Janzen 2012:156). He continues the description stating that there is no body shifting, but a seemingly mental shift as if the space used in the conversation up to that point was rotated on a turntable (Janzen 2012:156).

Constructed action and agreement verbs can use mentally rotated space as well as fixed spatial marking. For the null references and referential loci made with mentally rotated space to be successful, both the signer and addressee must be cognizant of the shift in the space (Janzen 2012:156). In terms of the Givenness Hierarchy, the cognitive status of referents made while using mentally rotated space is especially important to be used correctly as it requires both the speaker and the addressee to track the shift in referring expressions used. In this analysis, I was unable to code some of the constructed action for methodological reasons which are explained in 3.4.1. All the constructed action I do code, occurs in mentally rotated space.

2.1.3 Classifier Predicates

Classifier predicates have gone by many names in the literature: verbs of motion and location (Supalla 1982), classifier predicates (Schick 1987), polymorphemic verbs

(Engberg-Pedersen 1993), polysynthetic verbs (Wallin 1994), complex predicates (Schembri 2003), and classifier expressions (Talmy 2003:81). There have been many attempts to describe this unique feature of signed languages, but little is agreed upon. For this study, I am most interested in the referencing feature of classifiers, and my description of classifiers will attempt to be as theory neutral as possible, as the referencing is not the controversial aspect of this particular phenomenon.

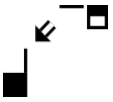
The use of classifiers is a strategy found in most signed languages which uses handshapes to represent certain classes of things, entities, or descriptors (Sandler & Lillo-Martin 2006:76). These handshapes can pair with motions to convey propositions or describe an object/entity (Sandler & Lillo-Martin 2006:76). Because signed languages utilize dual articulators (hands), the speaker can produce independent classifiers simultaneously (Sandler & Lillo-Martin 2006:78). This is one way that simultaneous referencing can occur in ASL.

2.1.4 Indexing

Indexing has been a historically controversial topic in studies of ASL. In order to compare my results with Swabey's, I differentiate between indexing as a pronoun, indexing as a determiner and indexing as an adverbial/locative. One difficulty in separating the categories was the variety of indexing. Some indexing points toward an entity classifier, as in example (1a). A second type of indexing points down and is commonly glossed as 'this', shown in example (1b). Other types of indexing point to "items" on a list. In this research, pointing to items on a list was categorized as Index + Pronoun as in example (1c). Example (1d) shows indexing used to refer to a plural entity which is labeled as a *plural pronoun*. Indexing which is categorized as a pronoun is labeled (IX-PRO). This is illustrated in (1e) which is phonologically identical to the representation of indexing used as a determiner (IX-DET + N). I was able to use the Neidle et al. (2000:88) treatment of the phenomenon to separate IX-PRO from IX-DET + N. They describe indexing as a determiner as always occurring prenominally. Indexing which falls after the noun they label as the adverbial or locative use of indexing. Therefore, indexing which is used simply

as a pronoun cannot co-occur with a noun. Indexing which occurred in conjunction with nouns, fingerspelling and classifiers were categorized accordingly.

(1) a.



IX + CL

b.

this

c.

IX + PRO

d.

PRO-PL

e.

IX-PRO/(IX-DET + N)

These are examples of possible uses of these terms. Given the use of space and the flexible nature of ASL, there are a wide range of phonetic possibilities and it would be unhelpful to try to represent all the variety in iterations.

Neidle et al. (2000:88) give a full description of the indexing definite determiner for ASL which Swabey used as well. Using their description, my categories reflect patterns which are consistent with cross-linguistic patterns in the Givenness Hierarchy.

2.2 Reference Tracking Studies

Over a decade after Swabey's work with referring forms in ASL, Frederiksen & Mayberry (2016) carried out a study focused on reference tracking and referent accessibility in ASL. In their study, they track references in short narratives in ASL and propose a hierarchy of referent accessibility from least to greatest (2016:65). They also analyze the form of referring expressions used in discourse for introduction, maintenance and reintroduction. Another contribution is that they look very closely at a number of different referring form categories. Table 4 shows a comparison of referring form terms used by Swabey (2002) with terms from Frederiksen & Mayberry (2016). Many of Frederiksen and Mayberry's categories are included in this current study as well. These categories are elaborated on in section 2.3.

Table 4. Referring form labels in Swabey vs Frederiksen and Mayberry

Swabey	**Frederiksen and Mayberry**
Ø plain verb	Zero Anaphor- Plain Verb
Constructed Action[1]	Zero Anaphor- Constructed action (fixed spatial marking; mental rotation)
Verbs that indicate subject/object	Zero Anaphor- Agreement verb (fixed spatial marking; mental rotation)
Classifier predicates	Classifier- SASS (Size and Shape Specifiers)
	Classifier- Semantic Classifier
	Classifier- Handle Classifier
IX-PRO	Pronoun
'that'	–
IX-DET Noun	Nominal- Modified Noun (IX Noun, Noun IX, noun CL, CL noun)
–	Fingerspelled Noun
'something/one' + Noun	–
∅ Noun	Bare Noun

[1] Swabey did not claim constructed action, verbs that indicate subject/object or classifier predicates as containing null referring forms. She describes the indicating verbs as following the pattern of pronouns following Lillo-Martin (1986), (Swabey 2002:56).

Swabey (2002) describes many of the same categories of referring forms as Frederiksen & Mayberry (2016), but her analysis only shows the distribution of those forms which she proposes signal cognitive status. Any type of referring expression can be tracked using the protocol; however, not all types of referring expressions have a form which signals cognitive status, and in particular, bare nouns are not considered to have such a form. For example, the form of the word *cat* does not inherently mean it signals type identifiable (or any other potential status), but the referent of a particular use of *cat* can be coded using the protocol. Swabey (2002) does track bare nouns which do not have a form which signals cognitive status; she also tracked indefinite determiners and specified that they were not obligatory. Thus she had a purpose for tracking these bare nouns.

2.3 ASL Referring Form Expressions Used in this Analysis

This section describes the various referring expressions distinguished in this analysis.

2.3.1 Null Expression

The purpose of this section is to outline which referring strategies are included in the null category in my analysis and to give additional description where appropriate. Included under the heading of "null" are arguments of plain verbs, agreement verbs, constructed action and classifier predicates, as well as referring expressions included in non-verbal predicates. These categories are separated based on historical treatment of these categories in signed languages. Only the expressions which contain null references (as opposed to expressions in which there is an explicit noun phrase used to reference thereby making the predicate non-referential) are coded. Thus agreement verbs (and other categories containing referring expressions described in this section) with explicitly stated arguments, are not analyzed within this study.

2.3.1.1 Null Arguments of Plain Verbs

Plain verbs are distinguished from agreement verbs because they do not allow for a change in motion or palm orientation in the verb which would indicate agreement (Sandler & Lillo-Martin 2006:31). Plain verbs license arguments which are null if not explicitly

given (Lillo-Martin 1986:428). Many cases of plain verbs use null referencing exactly the same way as spoken languages, without any spatial marking. However, plain verbs can be manipulated to include spatial markings on the morphology of the sign which would help indicate the referent of an argument. The difference between true null licensing and spatial marking is not separated in my analysis, but it may be useful to separate in future research on referring expressions in plain verbs.

2.3.1.2 Null Arguments of Agreement Verbs

Agreement verbs and their arguments are described in section 2.1.1. Agreement verbs can be intransitive, transitive or ditransitive, depending on the semantic category of the specific verb. In some cases all of the arguments of a particular verb are explicit, in some cases all are nulls, and in some cases a verb could have one (or two) argument(s) explicitly stated and one not. Thus it is important to determine verbal valence in order to account for all nulls. According to Frederiksen & Mayberry (2016) agreement verbs can agree by fixed spatial marking or mental rotation, and my data is separated accordingly.

2.3.1.3 Null Arguments Appearing in Constructed Action

Constructed action was described in detail in section 2.1.2. Frederiksen & Mayberry (2016) include constructed action as a null category of referring expression, which influenced my approach to labelling referring forms in this study. The referring expressions within constructed action include null arguments, among others, and the perspective shift of this discourse strategy makes it desirable to separate the nulls occurring in the context of constructed action from other categories of nulls. In other words, this is not one specific type of null referring expression, but would be an argument of a plain verb or agreement verb, for example, that occurs within this perspective shift. These are analyzed separately in this study to observe the effects of perspective shift on cognitive status restrictions.

2.3.1.4 Null Arguments of Classifier Predicates

Classifier predicates are linguistically complex and very unique to signed languages. They do not truly contain nulls, as classifiers contain procedural information which helps

the addressee pick out the intended referent (S. Jones 2013). In this thesis, classifier predicates are presented as containing null arguments following Frederiksen & Mayberry (2016), which is a useful way of organizing them as they are predicted to pattern as nulls and pronouns in the Givenness Hierarchy.

I divided the classifiers into Size and Shape Specifiers (SASS), Semantic classifiers and Handle classifiers following the description of Schick (1987), although I use the term *semantic classifiers* for her term CLASS (also called *entity* (Engberg-Pedersen 1994)) following Frederiksen & Mayberry (2016:54) and others.

SASS classifiers use handshapes which reflect the visual-geometric features of the object being referenced (Schick 1987:19). These classifiers show the dimensions and shape of the object (Schick 1987:19). Semantic classifiers use handshapes to refer to an entity such as a person walking or a vehicle (Schick 1987:13). Handle classifiers are used to show the movement and action of using an object (Schick 1987:26). These are typically transitive as they require an agent and an object (Schick 1987:26).

2.3.1.5 Other Null Expressions

The category labeled as '∅ other' in my study is comprised largely of non-verbal predicates which use zero anaphora. ASL does not have a copula, so classifiers, adjectives and other words often comprise the predicate, and these attributive clauses are often expressed without an explicit noun or pronoun as subject. Some of the tokens in this category are also non-verb lexemes which have been made referential through the use of space. The signer produces a sign in a certain location which has already been set up to refer to a certain entity. This makes the sign referential, and spatial referencing is treated as null in this study. Since this category is largely comprised of words which under normal circumstances are not referential, there is not a form in this category which could be isolated and shown to signal cognitive status.

2.3.2 Pronouns

In this section, I describe plural pronouns, possessive pronouns and reflexive pronouns, which are all classified as pronouns in my research. In place of singular personal

pronouns, ASL uses indexing, labeled IX-PRO in this thesis (see 2.1.4). IX-PRO is categorized separately from other pronouns, because it is a form that is widely debated in signed language research and so requires more specific description. I also include demonstrative pronouns in this section which are glossed as 'that' and 'this.' Note that 'this' has a similar form to many of the other index referring forms described in section 2.1.4.

2.3.2.1 Plural Personal Pronouns

Plural pronouns for this study were defined as indexed plural pronouns or pronouns with number incorporation. Indexed plural pronouns are produced with the index finger pointing to a specific area in space. Unlike in indexing for other purposes, plural indexing tends to add an arc motion to include all of the intended references. There are also examples in my data of referencing multiple people individually by pointing, moving the finger a bit to the right, pointing, moving the finger a bit and pointing to a new space. This is much like English co-speech gestures of "this one and this one and this one."

There is also number incorporation in the pronominal system which allows for specific numbers to reference pronominally. Thus instead of only having a singular, dual and plural, ASL can optionally incorporate specific numbers for referencing (McBurney 2002:330).

(2) a. 
IX-PL

b. 
three_of_them

Example (2a) shows a plural personal pronoun which is indexed, but an arc motion is included to show plural number. Additionally, example (2b) shows an example number inclusion with a change in motion from an arc to a circular motion on the horizontal plane. For more information on numeral incorporation see V. Jones (2013).

The scope of the analysis only includes third person personal pronouns. First and second person personal pronouns will not be described and are not included in the study

following the precedent set in other research. The reason given is that speech act participants are always implied to be a part of the discourse context, and thus, always in focus (Humnick 2009:44).

2.3.2.2 Possessive Pronouns

Possessive pronouns are produced with a flat hand pointed towards the spatial locus used to reference the entity as in example (3a). These can also be pluralized by moving the hand in an arc to reference the group as in example (3b). Numbers cannot be incorporated into possessive references.

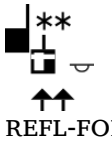
(3) a. 
2/3SG-POSS

b. 
2/3PL-POSS

2.3.2.3 Reflexive Pronouns

Reflexive pronouns are produced with the "thumbs up" handshape directed towards a spatial locus. For non-first person reflexive referencing, it can be optionally produced as the thumbs up (dominant hand) contacting the non-dominant hand which would use the one handshape (example (4b)). Numbers also cannot be incorporated into the reflexive pronoun, and it is pluralized by directing the "thumbs-up" handshape toward a locus, sweeping the hand a bit, directing it towards another locus, and repeating.

(4) a. 
REFL

b. 
REFL-FORMAL[2]

[2] For the purposes of this thesis, it is descibed as the formal version of the reflexive. It is not known to the author whether the difference between the two pronouns has ever been studied or what those differences may be. It is beyond the scope of this thesis to provide a description of the restrictions placed on either form of reflexive.

2.3.2.4 Pronominal Use of Indexing (IX-PRO)

The form labeled IX-PRO in this thesis consists of indexing which is not followed by a noun and is produced by pointing at a locus in space to reference an entity, location or other expression. This is opposed to 'this' which always points down. It is also phonologically similar to IX-DET, but IX-DET is always followed by a noun.

2.3.2.5 'that'

ASL has one demonstrative pronoun glossed as 'that' which can be used to refer to ideas and concepts established previously as illustrated in (5a). It must be differentiated from another sign often glossed as 'that' illustrated in (5b), which is produced on the hand and often functions as a complementizer in my research.

(5) a. 
that

b. 
that-COMP

'That' is a category Swabey (2002) includes in her analysis, but Frederiksen & Mayberry (2016) do not explicitly describe it.[3]

2.3.2.6 'this'

There is one category of indexing in my data which I gloss as 'this' which I have not been able to find in the literature. 'This' uses the indexing handshape, but it points straight down. There is one exception to this description which will be described in section 4.2.4.

2.3.3 Demonstrative Determiners

The two categories of noun phrases with demonstrative determiners I found in my data are those with the demonstrative determiner 'that' ('that' + N) and those with the index determiner (IX-DET + N). Swabey (2002) found IX-DET + N to be the only demonstrative

[3] It is possible, however, that in their 4 tokens of pronoun data, one or more instances could be tokens of 'that', as they did not give a detailed description of what they counted as pronouns.

determiner in her data. Frederiksen & Mayberry (2016:61) include the index determiner, but report no other determiners. Though I have found one other demonstrative determiner ('that' + N), I do not have many tokens of it.

2.3.3.1 Determiner use of Indexing (IX-DET + N)

IX-DET + N is a noun phrase with indexing preceding the noun. This form is distinguished from other forms of indexing in section 2.1.4.

2.3.3.2 'that' + Noun

'that' + N is a separate category from 'that,' with four tokens in my data. Swabey made no predictions about 'that' + N. It is also not a form mentioned in Frederiksen & Mayberry (2016).

2.3.4 Fingerspelling Feature

Fingerspelling is a unique feature of signed languages. Fingerspelling is a representation of written English, which seeks to represent spoken English. It utilizes unique single-handed handshapes for each letter in the English alphabet (in the case of ASL) to spell English words or for lexical borrowing. It is a feature useful for borrowing from the language of wider communication, but serves other functions than simple borrowing. ASL uses fingerspelling for a variety of uses including emphasis, entity introduction, use of proper English names, and technical jargon (Wilcox 1992:9-12). Some fingerspelling has been lexicalized and included in the regular vocabulary (Brentari & Padden 2001). Fingerspelling is a feature and not a specific form, but it is included as a category of interest in this study because of the tendency of fingerspelling to introduce entities. There is no cognitive status specific to introduction, but it is unlikely that any entity would be introduced at a higher cognitive status than Familiar. Fingerspelling is included in the study to discover whether fingerspelling is involved most often in introductions (and therefore largely found within the less restricted cognitive statuses).

2.3.5 Indefinite Article

'Something/one' + N is proposed as an indefinite determiner by Neidle et al. (2000:90) and Swabey (2002:52). This form occurs prenominally only and is produced by either wiggling the handshape one with the palm facing the signer or moving that handshape in a very small circle. The category of noun phrases with the determiner 'something/one,' is made up of 'one' N, 'one' FS and 'one' N IX in this current study. Swabey (2002) did not describe which other noun phrases accompany 'something/one' in her data, but the accompanying noun phrases found in my data did not appear to change the analysis and are combined in the presentation of the study.

2.3.6 Bare Nouns (∅ N)

ASL uses bare nouns for many of its references. There is no obligatory determiner, so bare nouns can be used for both indefinite and definite nouns (MacLaughlin 1997:135). In the Givenness Hierarchy, bare nouns can be used for referents with cognitive statuses from Type Identifiable through In Focus. They are not considered to be a form which signals cognitive status because there is no distinct part of the form which can be said to signal cognitive status as a part of its conventional meaning. In this study, bare nouns are not tracked since they cannot be proposed as a form which signals cognitive status.

CHAPTER 3

METHODOLOGY

This chapter describes my text corpus, my coding protocol and methodology, a comparison to methodology used in Swabey (2002), and an overview of methodological issues documented by previous studies using the Givenness Hierarchy as well as challenges specific to this study.

3.1 Text Corpus

My corpus consists of video blogs (VLOGS) collected from YouTube of ASL signers discussing the candidates for the 2016 American Presidential Election. These texts allow for a similar theme throughout the corpus: comparing Presidential candidates Donald Trump and Hillary Clinton as well as various political issues. This allowed for similar references and similar topics discussed by different people. The signers clearly expect their audience for these videos to have cultural knowledge of a number of entities which the speakers reference. The corpus consists of four videos featuring five speakers: one man and four women. The speakers range in age from late 20s to early 60s. I coded approximately five minutes of data from each video resulting in 22 minutes of data total. I have included links to all the videos in appendix G as well as time codes next to all the examples so that linguists may watch the data rather than rely on my transcriptions. The time codes appear as a letter followed by the time where C4:35 would refer to the video from speaker C at 4 minutes and 35 seconds into the video.

3.2 Preparing Texts for Analysis

I used the program ELAN from the Max Planck Institute to gloss and produce a free translation of the videos. Then for each referring form, I recorded in a notebook, its

time code, its basic category label (Noun, null etc.), what the expression refers to, the cognitive status of the referent, the criterion on which the cognitive status coding was based (the numbers beside the abbreviated cognitive status) and whether the referent was mentioned simultaneously with another referent (see section 3.4.2.1 for details on why this is an important factor). A sample of my coding record appears in Table 5.

Table 5. Sample of coding record

Time Code	Form	Referent	Cognitive Status	Simultaneous
1:00	IX + FS	Clinton	Foc1	no
1:01.5	N + IX	Clinton	Foc2	no

Each of the forms was categorized according to the referring form categories described in 2.3. The purpose of looking at so many finer distinctions between types of referring forms was to determine which were needed for consideration for the analysis using this model.

3.3 Methodology of the Givenness Hierarchy Model

In this analysis, I used the protocol developed by Gundel et al. (2006) for coding my data. In the original study, Gundel et al. (1993) analyzed five languages (Chinese, Japanese, English, Russian and Spanish) using a coding protocol to determine the cognitive status of referents of referring forms in multi-genre corpora. Since that time, the Givenness Hierarchy has been studied in conjunction with many other languages (Swabey 2002, Mulkern 2003, Hedberg et al. 2009, Gundel et al. 2010, etc.) and the coding protocol has been subsequently revised, with the 2006 version being the most recent version available.

Swabey's dissertation was written before the 2006 revision of the coding guidelines. Overall, there is little difference between the 2006 guidelines and the ones Swabey used; however, there are a few key differences in the In Focus and Activated statuses. (A comparison of these guidelines appears in Table 6 below.) There is one guideline from Swabey that codes a referring expression as Activated that would be coded as In Focus in the revised guidelines by Gundel et al. (2006). In the version that Swabey used, the guideline

states that a referent mentioned in the previous two sentences is Activated. This seems not to add anything when combined with her third guideline of Activated as it means that references from two sentences previous and three sentences previous are both considered Activated. There are two new In Focus guidelines proposed by Gundel et al. (2006), one that a referent is In Focus if "it is a part of the interpretation of each of the two immediately preceding clauses," and also that a referent is In Focus if "it is the event denoted by the preceding clause." There is also one additional Activated guideline in the new protocol, which is that a referent satisfies a criterion for Activated if "it is a proposition, fact, or speech act associated with the eventuality denoted by the immediately preceding sentence." The guidelines established by Gundel et al. (2006) also revise the phrasing of the protocol from the label "focused object," to the label "syntactic focus." Table 6 illustrates the differences between the guidelines used by Swabey and the guidelines used in this thesis.

Table 6. A Comparison of the guidelines used by Swabey and the guidelines from Gundel et al. (2006)

Guidelines used by Swabey[1]	**Gundel et al. Guidelines, Revised 2006**
In Focus The referent was mentioned in the main clause subject position in the immediately preceding sentence	**In Focus** It is the interpretation of the main clause subject or the syntactic topic in the immediately preceding sentence/clause (syntactic topics include topicalized or dislocated phrases, including topic marked phrases, e.g. the wa phrase in Japanese).
In Focus The referent was introduced in a syntactic focus position in the immediately preceding sentence.	**In Focus** It is the interpretation of the syntactic focus of the immediately preceding clause (i.e., postcopular position of a cleft or existential sentence).
In Focus The referent was introduced as a focused (stressed) object or indirect object in the preceding sentence.	

[1] Swabey cites Tonya Custis as the author of the guidelines she uses, based on the guidelines for Gundel et. al. (1993) It is cited here as Swabey's guidelines which can be read in their full form in a appendix G of Swabey's full dissertation. The guidelines as they appear here have been adapted from those guidelines.

Guidelines used by Swabey[1]	Gundel et al. Guidelines, Revised 2006
In Focus The referent was mentioned earlier in the same sentence.	**In Focus** It is part of the interpretation of a previous part of the same sentence.
In Focus The referent was a higher-level topic that was part of the interpretation of the immediately preceding sentence (whether it had been previously mentioned or not).	**In Focus** It is a higher level topic that is part of the interpretation of the preceding clause (whether it is overtly mentioned there or not).
–	**In Focus** It is part of the interpretation of each of the two immediately preceding clauses.
–	**In Focus** It is the event denoted by the immediately preceding sentence.
Activated The referent was mentioned in the previous two sentences.	**Activated** It is part of the interpretation of one of the immediately preceding two sentences.
Activated The referent is present in the immediate spatio-temporal context.	**Activated** It is something in the immediate spatio-temporal context that is activated by means of a simultaneous gesture or eye gaze.
Activated The referent was mentioned three sentences previous, but not since then.	**Activated** It is a proposition, fact, or speech act associated with the eventuality (event or state) denoted by the immediately preceding sentence(s).

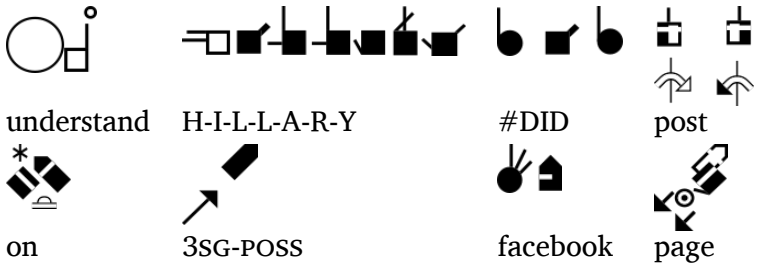
It seems as though these differences in coding protocol do not affect the comparison as Swabey's and my results differ more in the less-restricted form-status correlations and not in the forms signaling In Focus/Activated.

For each referring expression, I determined the referent of the sign, then looked at the previous context to determine the cognitive status of the referent. I followed the coding guidelines set out in Gundel et al. (2006) and referred to Swabey (2002) to help with difficult judgments that she also faced. I also reviewed previous studies using this framework (Mulkern 2003; Humnick 2009; Gundel et al. 2010). Difficult cases were reviewed with an experienced coder, Linda Humnick. Cognitive status is determined by proceeding

down the coding protocol, and finding the first (highest) condition that a referent satisfied. Only one condition must be satisfied for the referent to be coded as signaling that status. In the cognitive status column of my data record, I include which line of the protocol was satisfied to determine the status. Finally, I marked whether the referent was produced simultaneously with another referent. A sample of the coding process is presented in the discussion following example (6) (A1:02)[2], which codes the third person possessive pronoun (glossed as '3SG-POSS').

Table 7. Coding record for example (6)

Time Code	Form	Referent	Cognitive Status	Simultaneous
1:02	3SG-POSS	Hillary	Foc2	no

(6) 

understand H-I-L-L-A-R-Y #DID post

on 3SG-POSS facebook page

'Understand that Hillary did post on *her* Facebook page.'

The referent of '3SG-POSS' is Hillary, and the location associated with this referent was established in the space to the right of the signer earlier in the same sentence. Since the protocol is designed to determine the highest possible status the referent could be coded, I begin with the first criterion of In Focus, and move towards Type Identifiable. I stop when the referring expression meets the sufficient conditions for that criterion. The first criterion for In Focus is that the referent is the interpretation of the subject or syntactic topic of the previous sentence. Our example does not fit this. The second criterion for In Focus is that the referent is the interpretation of a previous part of the same sentence. Since 3SG-POSS meets the conditions for that criteria, the referring expression is coded as In

[2] The letter refers to the speaker and the number refers to the time code of the video. All videos are available on YouTube and time codes are given so that the reader can find the example on the appropriate video. The links to the videos are found in appendix G.

Focus according to the second criterion. This reference was not produced simultaneously with another referring expression and so is not considered simultaneous.

In addition to the process of coding referents and proposing form-status correlations based on corpus results, in other studies using the Givenness Hierarchy (Gundel et al. 1993; Humnick 2009; Khalfaoui 2009; Gundel et al. 2010 among others), questionnaires were used to test the acceptability of forms being used with various cognitive statuses from native speakers of the language. After an initial study based on corpora, the proposed form-status correlations were tested by asking native speakers about the acceptability of example sentences made with forms used for various cognitive statuses. This test helps determine whether a form is truly restricted to referents of a certain status or whether that is an accident of the corpus distribution. See section 4.2.2 for further discussion on the effect of the addition of this research element. Neither Swabey's study nor mine includes this research element. Our studies provide evidence for correlating some referring expressions with cognitive status in ASL. This evidence can be used to design questionnaires which would test these proposals in future research.

3.4 Coding Decisions

This section reviews previous research for coding decisions regarding discourse strategies and difficulties found in using the coding protocol. It also reviews challenges I found when coding for American Sign Language.

3.4.1 Coding Decisions Following Precedence of Previous Research

The literature on the Givenness Hierarchy is much more robust now than in 2002 when Swabey worked on her dissertation. I have the advantage in being able to draw on the experiences and notes of many to code my data as well as to describe difficult cases. Some of my coding decisions are based on historic usage of the Givenness Hierarchy by research done under the supervision of the originators of this framework.

Many of the previous works on the Givenness Hierarchy include data on bare nouns, but the theory does not consider bare nouns to be a form which would inherently signal cognitive status (Gundel et al. 2010:1770). Thus I did not code for bare nouns, which

significantly reduced the number of tokens that needed to be coded. I also did not code lexicalized fingerspelling, only non-lexical uses of fingerspelling. Fingerspelling, like stress in oral languages, is a feature that may signal something about cognitive status, but it is not the same as a specific form which can signal cognitive status. Lexicalized fingerspelling however, has behavior which patterns more like a bare noun (in cases where the fingerspelling is referencing something) than fingerspelling as a feature. Since bare nouns were being omitted, it was also appropriate to omit lexicalized fingerspelling from this study.

Spatial referencing can occur on a wide variety of signs, but its main relevance to this study occurs when spatial marking allows a sign to become referential which is not normally referential. I coded spatial referencing as null references since there is a precedent for doing so (Frederiksen & Mayberry 2016). These 'nulls' include information which in many cases aids the addressee in picking out the referent and is therefore not truly a null. Nonetheless, I retain the label of null because of the precedent set by Frederiksen & Mayberry (2016) and the lack of distinction presented in the results of Swabey (2002).

Reported speech involves a perspective shift from the speech context to the context of the "story world." That shift makes it difficult to utilize the coding protocol because there is a lack of established discourse within the new perspective of the "story world." The discourse only contains the context reported by the speaker rather than all the context involved prior to the speech. It may be that the difference between the referring form in reported speech and the referring form used in the actual event that transpired could cause the reporting to lack the proper context for the actual cognitive status taking place within that conversation. Therefore, in research with the Givenness Hierarchy, reported speech is not coded, although referring forms that occur within speech orienters are coded (Humnick, personal communication).

Constructed action works much the same way, reporting mannerisms and actions of the character within the story without the complete context of the event being reported on. Most occurrences of constructed action, therefore, were also excluded from the data. A few cases of constructed action needed to be coded because, if they were ignored, subsequent references would lose the context for coding them. They would then appear to be exceptions because the actual context in which they were last mentioned, would be

omitted from coding. It was also possible in those circumstances to follow the chain of references in the constructed action world. There was one example of constructed action which I did not code because references made within this perspective would be coded differently than coding them inside the discourse. The narrator adopted a caricature of the mannerisms of Donald Trump for this perspective shift which is all that indicated a perspective shift had occurred. Nevertheless, because constructed action and dialogue took place for this segment and because it followed the pattern of reported speech in shifting the referents to the perspective of the realm in which the speech took place, it was not coded.

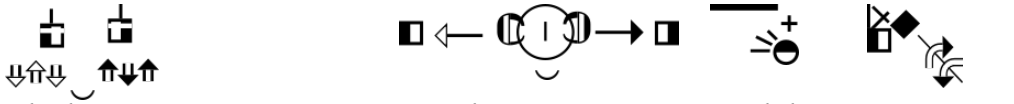
I separated constructed action into mentally rotated space or fixed spatial marking following the precedent set by Frederiksen & Mayberry (2016). Agreement verbs were separated into three categories: *fixed spatial marking*, *mentally rotated space* and *no perspective shift*, because not all agreement verbs occur in a perspective shift.

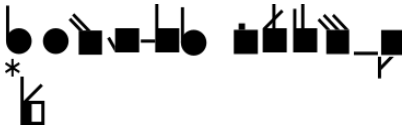
Another principle typically regarded by researchers within this framework is "that pronouns referring to speech act participants are not generally included in discussions of theory about the distribution of types of referring forms because of the special contextual feature that the referents are always implicit in the speech act context" (Humnick 2009:44). This has been the precedent which I followed in my own research as well. However, a few first person plural references were coded in which the plural referent included references to entities which were not speech act participants.

Plurals presented unique challenges to the research as mentioning a plural counts as a mention of the individuals which can bring those referents into a higher cognitive status upon the first mention as an individual (Humnick 2009:141). However, the mention of individuals or a subset does not imply the existence as a group (plural referent). Even if each member of the group was previously mentioned, the first mention of the combined group cannot be coded as In Focus. See Humnick (2009:141-142) for further discussion.

In the ASL data, example (7) A0:08 illustrates the principle that the mentioning of a group brings the individual members of the group into a higher cognitive status. Trump and Clinton were both coded as In Focus according to criterion two because of the mention earlier in that sentence of the presidential candidates which brings them into focus before

they are named specifically. Context is obviously a part of this because anyone watching during the elections would have known which two candidates he was discussing, so mentioning them as candidates in the plural, brings each separately to mind. After this reference, if he were to call them candidates again, after discussing Trump and Clinton as candidates individually, that reference would have been maintained because of the mention of Clinton or Trump.

(7) 
which president candidate one_or_two



D-O-N-A-L-D T-R-U-M-P second


H-I-L-L-A-R-Y C-L-I-N-T-O-N

'Which presidential candidate, Donald Trump or Hillary Clinton,...'

Finally, there were a number of referring forms for which coding remained undetermined. All references can be coded using the guidelines given, but some references present special cases which are not adequately accounted for in the current coding protocol. The special cases I found in my data fell under two main categories: cataphora and non-specific references. Cataphora in terms of the Givenness Hierarchy is the use of a referring expression with minimal form to refer to a referent that is not activated in the discourse until after that form is used. In other words, the hearer must look forward to resolve the referent. In some cases, cataphora is a discourse strategy which is used to achieve a specific discourse purpose, though it can also be syntactically determined. Non-specific references are references such as the generic "they" which can be used to refer to people or even one specific person without intending to identify the specific people group or person involved. It is used in general cases such as "What happened in court today? **They** are waiting for a verdict on the trial." **They** in this case represents a very general group of people which was not specified before. Though there is not enough context to code this example, it is

still clear that it does not meet the criteria for In Focus which is generally required for unstressed pronouns. Cataphora and non-specific references present difficulties in using the coding protocol, because their referents correlate to an unexpected cognitive status in order to achieve a certain purpose within the discourse. These exceptions are therefore placed in the Referent Undetermined category in order to keep the focus of the study on the normal use of language.

3.4.2 Challenges in the Coding Process

Two main challenges for this specific research project were to define how to code simultaneous references to different entities, and to make decisions related to which nulls to code. These issues are elaborated in greater detail within this section. A few of the categories I looked at in my study were not proposed as forms in the final analysis. Some of those categories are mentioned in this last subsection and the reason for their exclusion from the study is given.

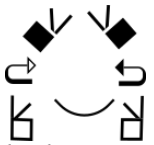
3.4.2.1 Simultaneous References

In this study, simultaneous referencing is defined as two or more entities being referenced at the same time for the same syntactic function, but without grouping the referents together in the plural. Two or more entities being referenced as two subjects (with one verb) is an example of simultaneous referencing. The speaker mentioning subjects, objects or indirect objects in agreement verbs does not automatically create simultaneous references. In the analysis of simultaneous references, I coded each referent separately and noted the fact that it was referred to simultaneously with another entity. I particularly note simultaneous references in this study because Swabey (2002) claims that both referents must be In Focus for them to be successful.

Simultaneous referents can be coded because the guidelines are based on syntactic concerns of the previous context rather than on which referent was used most recently. It is not a problem then, for multiple referents to be considered In Focus.

Example (8) (B2:02) shown below, shows an agreement verb with simultaneous referencing on the objects. This example is coded as simultaneous because it is produced with

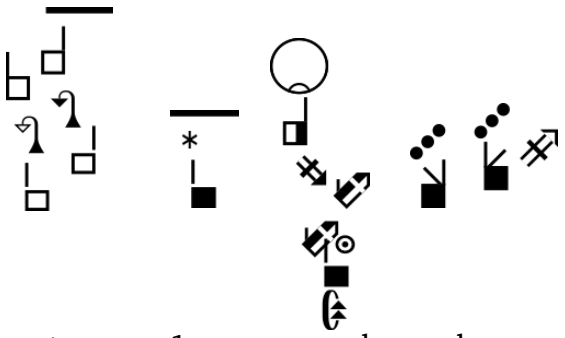
two hands using spatial agreement for both hands to reference both Clinton and Trump, as direct objects, at the same time.

(8) 
look-at-Trump-and-Clinton

In this example, the speaker had previously established that the election was between Donald Trump on her left and Hillary Clinton on her right. Therefore, her use of the sign 'look' references both Clinton and Trump simultaneously as two distinct entities. It is not the same as a plural reference because they are not being looked at as a group of candidates, but as two individuals.

3.4.2.2 Syntactic Decisions on Null References

I had to make decisions on complex syntactic issues in order to use the guidelines correctly. Some sentences were to me, a non-native ASL user, difficult to classify, yet following the coding protocol relies on accurate syntactic analysis of the corpus. One of the difficult decisions for the syntactic analysis relates to the obligatory transitivity of some verbs. Decisions had to be made about which verbs were obligatorily transitive because of the possibility of null objects. Intransitive verbs do not require objects, thus a null argument is not assumed and coded. However, transitive and ditransitive verbs have obligatory arguments that are, if not explicitly stated, assumed as null tokens to be coded. These decisions were made based on my own intuition as a speaker of the language and checked with a Deaf ASL user with extensive linguistic training. Example (9) (A0:19) is an example of this issue.

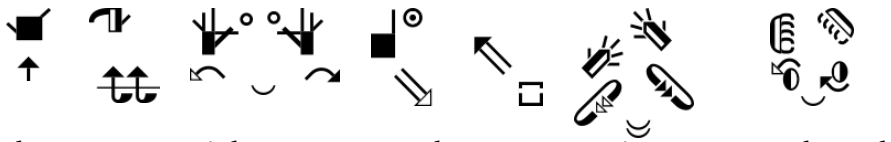
(9) 

up_to_now 1SG research analyze
Up to this point I have researched and analyzed...

In example (9) 'research' and 'analyze' are both verbs which are juxtaposed together and have related meanings. Though I use this to illustrate argument decisions, I do not code for either subject because it references the speaker see section 3.4.1 for more details. They are part of the same conjoined verb phrase with a shared subject. 'Research' is not obligatorily transitive, but 'analyze' is, so I assume a null object for this verb. The object coded for 'analyze' is "important questions" which is the syntactic focus of the previous clause making the referent of this example coded as In Focus.

Another syntactic issue that required careful deliberation is in sentences with multiple predicates whether they share a subject or have distinct subjects. This affects the coding process because sentences with multiple verbs sharing the same subject are not coded more than once in this methodology for the same subject.

Another issue specific to ASL is that there is usually little phonological change made to a verb when it is nominalized, making nominalization difficult to determine. 'Punch' in (10) (A4:45) is a case in which what is ordinarily considered to be a null referent, seems to be non-referential and was therefore not coded.

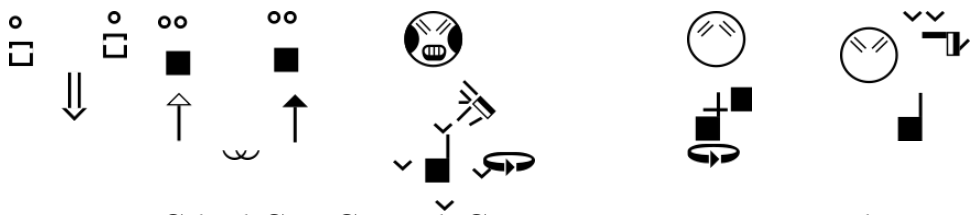
(10) 

that wow violent punch environment upheaval
'That--wow!--was a violent punch! There was chaos all around!'

The word 'punch' was analyzed as a noun because it seems to be part of the same noun phrase as 'violent.' The signer does not break eye contact with the camera until the end of

'punch'. 'Punch' also has phrase final lengthening and an eye blink, indicating the end of a phrase. This seems preferable to the consideration that 'punch' is used as a verb in this context because that would likely indicate a passive verb or insufficiently identified null arguments for the subject and object slots.

One example was excluded on the basis that an unknown referent cannot be coded, specifically, the null that occurs in example (11) in the direct object slot of '∅-hurl-∅_at-∅' at (C0:50). There are unspecified people hurling something (unknown referent) at Clinton which sticks to her. As informed American people would know, speaker C is discussing the many criticisms of Hillary Clinton which have followed her throughout her entire political career. However, the speaker never explicitly states whether she is discussing criticisms, insults, scandals or any other negative thing that could be associated with Clinton. The reference does not appear in the formal counts of data.[3]

(11) 

many ∅-hurl-∅_at-∅ stick-∅_CL-semantic CL-IX-3PL why
'Many [people] hurl [insults/criticisms/scandals] [at Clinton] which follow [her] around, why is that?'

3.4.2.3 Categories Removed from Consideration

One of the issues I looked at in my study was the role of word order within a multi-word referring expression in correlating referring forms with cognitive status. After my analysis was complete and all the data were coded, the results revealed that word order in longer noun phrases did not affect the distribution of the cognitive statuses of their referents. The categories which were the same except for word order, with the exception of variations on phrases with the elements of IX + N, were combined into a single category.

[3] The difficulty in this example relates specifically to the direct object slot of '∅-hurl-∅_at-∅' in this sentence; the nulls of the subject and indirect object were coded as they were clearly defined. The null on 'stick-∅_CL-semantic' as well as the'IX- 3PL 'must be removed from consideration for the same reason as we removed the direct object of '∅-hurl-∅_at-∅.'

CHAPTER 4

RESULTS

This chapter begins by presenting a summary of the coding results for the referents of each type of referring form in the corpus and the proposed form-status correlations based on those results. Each section gives examples that represent the analysis of the proposed forms, as well as challenges and exceptions to the proposed form-status correlations. This chapter ends with a description of some of the categories which are not proposed as forms correlating to cognitive status, but which are still of some interest to researchers for the behavior of referring expressions in ASL.

The text corpus included 318 tokens of referring forms in the categories targeted for this study. For each of these forms, the distribution of the cognitive statuses of the referents is listed in Table 8.

The Givenness Hierarchy has unidirectional entailment such that forms which correlate with the less restricted cognitive statuses, for example Type Identifiable, may be used with referents with a more restricted (higher) status. Thus 'one' + N, which is a form proposed as correlating with referents that are at least Type Identifiable in ASL, may be used with referents that are Familiar, Activated or In Focus. In previous work on the Givenness Hierarchy, "initial hypotheses about form-status correlations were established by pairing each form with the lowest status associated with that form in the corpus data, e.g., if a form is used for entities in focus, but never for ones that are at most activated, it was hypothesized that the form requires the status 'in focus'" (Gundel et al. 2010:1775).[1] There is also a column in the distribution[2] table for Referent Undetermined. This was used

[1] In many previous studies on the Givenness Hierarchy, these hypotheses were then used to formulate questionnaires which were given to native speakers of the language. These questionnaires tested the data collected from the corpus against native speaker judgements to determine whether the distributions found in the corpus were indicative of the cognitive status signalled by a referring form. These questionnaires were not used for the Swabey (2002) study or this current study.

[2] *Distribution* in this study refers to the tokens of the referring form which are coded across different cognitive statuses.

for cases in which the referent could not be coded using the coding protocol, and therefore, had an undetermined cognitive status. These cases are explained in greater depth in section 3.4.1.

Table 8. Distribution of forms condensed

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
∅ Plain Verb	29						1	30
∅ Agreement Verb	24		1				1	26
Constructed Action Mentally Rotated Space	1	1		1				3
∅ Classifier	16		1	1			4	22
∅- other	14							14
Pronoun (non-indexing)	26	1						27
IX-PRO	38	2					1	41
IX + CL	4							4
'that'	8	2						10
'this'	3	2					2	7
IX + Pronoun	19	1	2		3			25
IX + FS	8	3	11	1				23
IX-DET N	4	2	7	3				16
'that' + N	4			1				5
N + IX-ADV		2	2	3		2		9
IX + N + IX	3	1			1			5
'one'/'something'	1			5	1	1		8
Fingerspelling	15		22	2	1	3		43
Total	217	17	46	17	6	6	9	318

Table 9. Proposed form-status correlations

Form	Cognitive Status
∅ referents of plain verb; ∅ referents of agreement verb; pronoun (non-indexing); IX-PRO	In Focus
'that;' 'this'	Activated
	Familiar
IX-DET + N; 'that' + N	Uniquely Identifiable
	Referential
'something'/'someone,' 'one' + N	Type Identifiable

In my study, I find the following forms to signal In Focus: Null arguments of plain verbs (∅ plain verb); null arguments of agreement verbs (∅ agreement verb); pronoun (non-indexing) and IX-PRO. As Table 9 shows, I propose 'this' and 'that' as forms which signal Activated and I propose the determiner phrases IX-DET + N, and 'that' + N as forms which signal Uniquely Identifiable. I also found 'something/someone' and 'one' to signal Type Identifiable. I do not propose null arguments of constructed action or classifier predicates as correlating with any status (see sections 4.1.3 and 4.1.4 for discussion on this). These results are different than the results proposed by Swabey (2002). There are two new categories: 'this' and 'that + N'. The demonstrative determiner IX-DET + N, I propose as signaling Uniquely Identifiable rather than Familiar. For more discussion on the comparison, see section 5.1.

4.1 Null Expressions (∅)

As described in section 2.3.1, the nulls coded in this study were divided into the following categories: null arguments of plain verbs, null arguments of agreement verbs, null arguments used within constructed action, null arguments used as classifier predicates and null arguments appearing with attributive predicates and other types of lexical items. Most tokens of nulls used with plain verbs and agreement verbs correlate with referents that have In Focus cognitive status, but there were a few which presented exceptions as well as some which were classified as Referent Undetermined following previous works on

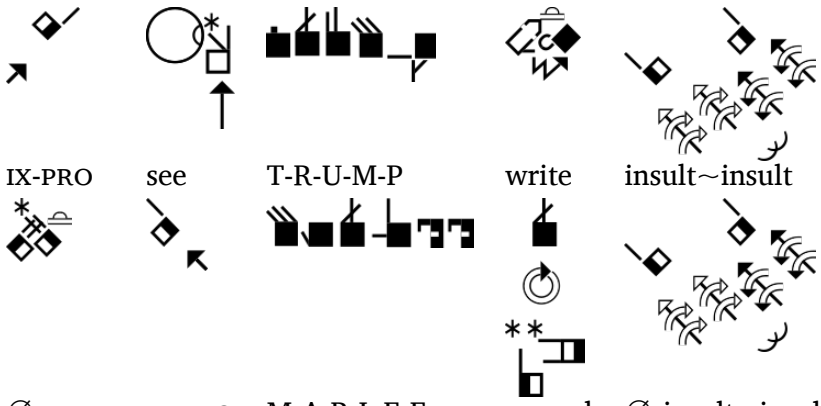
the Givenness Hierarchy (Gundel et al. 2010; Humnick 2009). I found that some of these categories (constructed action, classifier predicates and the "other" category) used spatial markings or other more subtle ways of indicating the referent, which may account for the use of referents that are not coded as In Focus. I also present data I collected related to signers producing two references to separate entities simultaneously.

4.1.1 Null Arguments of Plain Verbs

Null arguments of plain verbs in my data were distributed across cognitive statuses with 29 referents coded as In Focus and one token in which the referent was classified as undetermined for a total of 30 tokens. I propose that null arguments of plain verbs signal In Focus.

Example (12) (A2:10) illustrates a null subject of a plain verb for which the referent is coded as In Focus.

(12)



IX-PRO see T-R-U-M-P write insult~insult

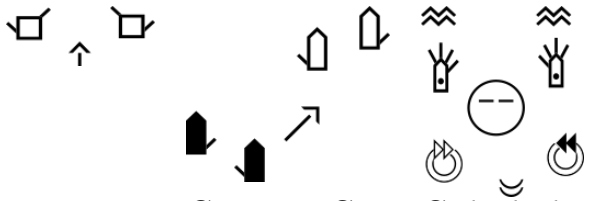
∅-name IX-PRO M-A-R-L-E-E r_word ∅-insult~insult-∅

'He saw Trump write insults; [he][3] called Marlee the "r word"--
[he] really insulted [her]!'

In this example, the plain verb '∅-name' in the second sentence references Trump. Trump is mentioned as the subject of the previous clause which is the first criterion for coding a referent as In Focus.

[3] Nulls appear in brackets in the free translation for this study.

The one referent whose cognitive status is undetermined is found in example (13) (C0:06). The reference is to the topic of the VLOG found in the second null of '∅[4]-present-∅' (the object) which the speaker plans to discuss during the VLOG.

(13) 

now ∅-present-∅ ∅-think_about

'Now [I] will present [something] [for you] to think about.'

This is a cataphoric mention of the main topic which she is in the process of introducing. The referent of this null is overtly specified after this first mention and therefore cannot be taken into consideration when applying the coding criteria. In the literature on this model, such an exception would not normally be considered a counterexample to the claim that this form requires a referent to be In Focus.

Null arguments of plain verbs, therefore, present a strong case for showing that null references signal In Focus.

4.1.2 Null Arguments of Agreement Verbs

The distribution of agreement verbs contains 26 total tokens. Of these, 24 were coded as In Focus, one was coded as at most Familiar and one was Referent Undetermined. Table 10 shows the distribution of Agreement verbs divided into three categories; the first is that of agreement verbs without any perspective shift. Perspective shift is then divided into two categories: Fixed Spatial Marking and Mentally Rotated Space.

[4] The null subjects of both verbs are not coded as they reference speech act participants and are therefore not mentioned in this example.

Table 10. Distribution of agreement verbs

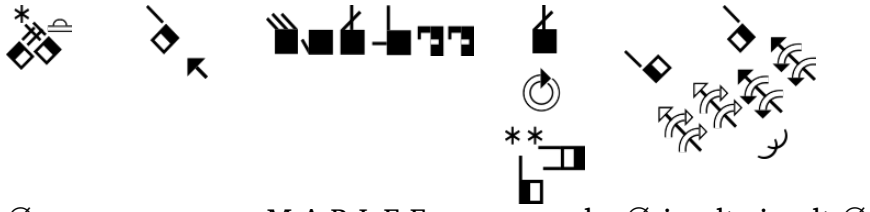
	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
∅ **Agreement verbs**	19						1	20
∅ **Fixed Spatial Marking**	3		1					4
∅ **Mentally Rotated Space**	2							2
Totals	24		1				1	26

The one token coded as at most Familiar occurs within Fixed Spatial Marking. This instance will be further explained in example (15). There are not many instances of perspective shift which could be coded in my data. Part of the reason for this could be that mentally rotated space tends to co-occur with constructed action and constructed dialogue which fell outside the potentially coded data for this study. Another possible reason for so few tokens could be that the non-narrative genre does not seem to rotate space as much.

Example (12) is reproduced below as example (14) to illustrate an agreement verb in my data for which the null is coded as In Focus.

(14)

IX-PRO see T-R-U-M-P write insult~insult



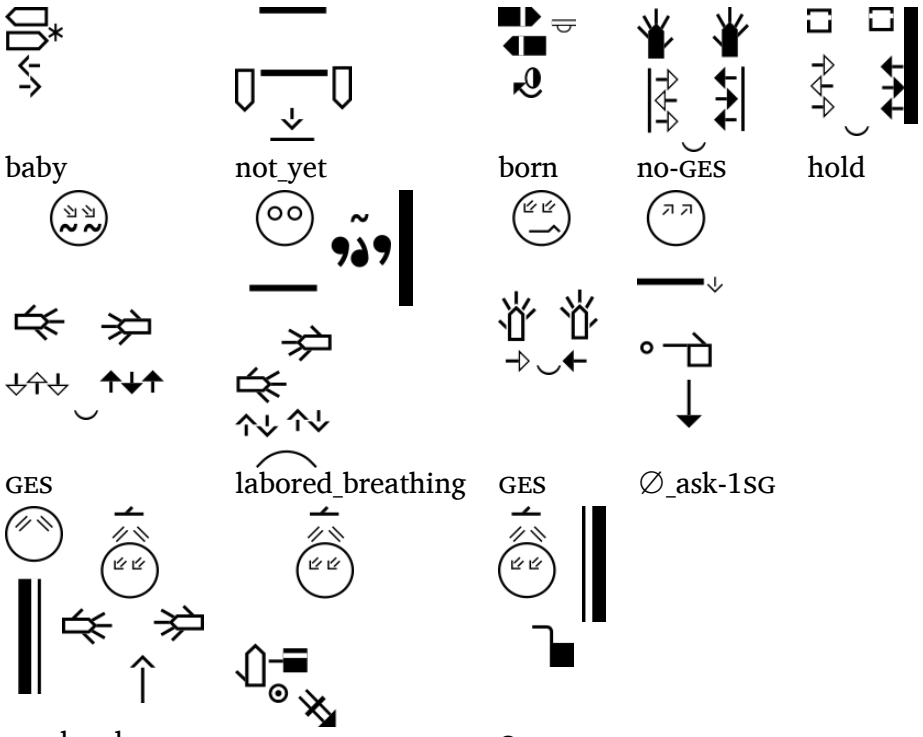
∅-name IX-PRO M-A-R-L-E-E r_word ∅-insult~insult-∅

'He saw Trump write insults;
[he] called Marlee the "r word"--[he] really insulted [her]!'

In this example, 'insult~insult' is reduplicated for plurality in the nominal (first) instance for this sentence and for emphasis for the verbal (second) instance. '∅-insult~insult-∅,' the agreement verb found at the end of the second sentence, which contains two null arguments. Note that there is no eye blink or pause which would indicate a break in the sentence before '∅-insult~insult-∅,' so the agreement verb is a part of the second sentence. Trump is the referent of the null argument subject of '∅-insult~insult-∅' and is coded as In Focus as the subject of the same sentence ('∅-name'). Marlee Matlin is the referent of the null object and is spatially referenced by directing the sign '∅-insult~insult-∅' towards the space previously established for Marlee. She is also In Focus, as she was mentioned in a previous part of the same sentence.

There is one example in which the referent coded does not achieve the cognitive status I propose for the null form of agreement verbs. Example (15) (C4:24) coded as Familiar is glossed as '∅_ask-1SG'. The null referent is the main concern for this example. The context of this referent is an embedded narrative in which the narrator relates her experience birthing twins at a hospital. The narrator was describing her own experience in the two sentences prior to the agreement verb in which the doctors ask a question, and therefore, the interruption of her thoughts by the mention of the doctors, who ask a question, cannot be coded any higher than Familiar. In the narrative, the only participants are the narrator, the doctors and her unborn babies, which makes it obvious who is asking her a question. She assumes the role of the doctors, tilting her head and eye gaze downward, which is another clue that the doctors are the null referent. She would have been in bed and therefore lower than the doctors who would be looking down at her to talk to her throughout this experience. Though the referent of the null form was not previously mentioned in the narrative, it is easily understood as the most likely entity to be asking a medical-related question. *Doctors* were overtly mentioned in a previous embedded narrative section of the text (the free translation of which appears in section 4.1.3) explaining the circumstances of the birth of her first child. This narrative section, however, is about the birth of her twins and mentions that she went to the hospital, but does not mention the doctors overtly. The reference to the doctors is coded as at most Familiar because it could be assumed to be known to the hearer through shared cultural knowledge with the speaker. This referent includes spatial marking and facial expressions which make the reference clear though the referent is not In Focus.

(15)



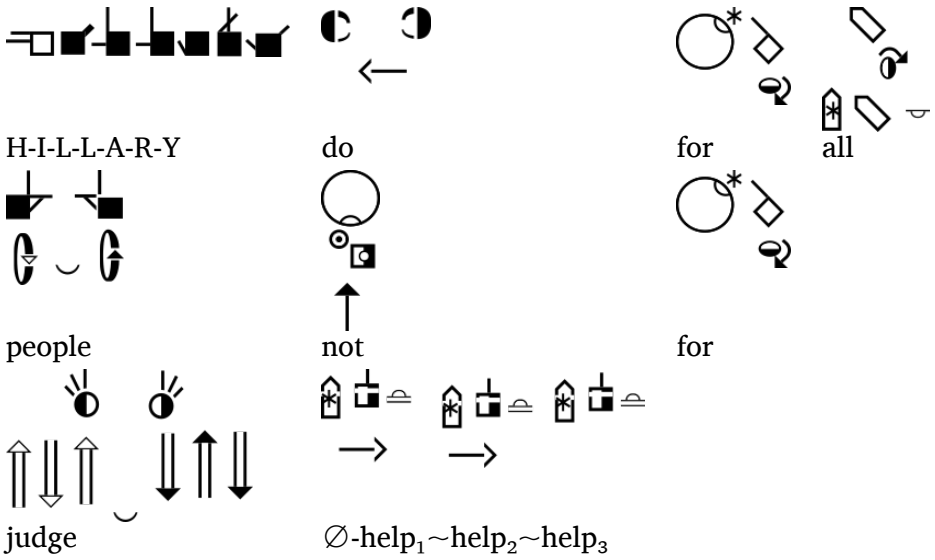
'Don't let the babies be born yet. Hold it in. It was hard to breathe. [They] asked me, "Do you want to go ahead with surgery?"'

The agreement verb '∅_ask-1SG' in this example uses fixed spatial marking, though it is not In Focus. The narrator's head tilts downward which is a type of body shifting, therefore, this is fixed spatial marking rather than mentally rotated space. This exception in example (15) suggests evidence that spatial marking which results in referencing should not be treated as null in signed languages. More discussion on spatial marking will be presented on relevant examples throughout this chapter and my analysis will be summarized in section 5.2.

There is a case for the null argument of agreement verbs found in example (16) (D1:14), which is found to be undetermined. The referring expression is glossed as 'help$_1$~help$_2$~help$_3$.' 1, 2 and 3 (the null arguments) represent generic people. People have already been introduced in the sentence before, and this references a subset of people, but it is not more specific than being the group of people which Hillary Clinton would like to help. This lack of specificity for this generic referent presents a problem because the referent is not a type (as in Type Identifiable), but is also not specific enough to be

identified as a unique referent. This is a case of generic referencing and is not considered in the distribution of the data (see section 3.4.1 for an explanation).

(16)



'Hillary does (something) for all the people, without judgement.
[She] helps this one, this one and that one.'

4.1.3 Null Arguments Appearing in Constructed Action

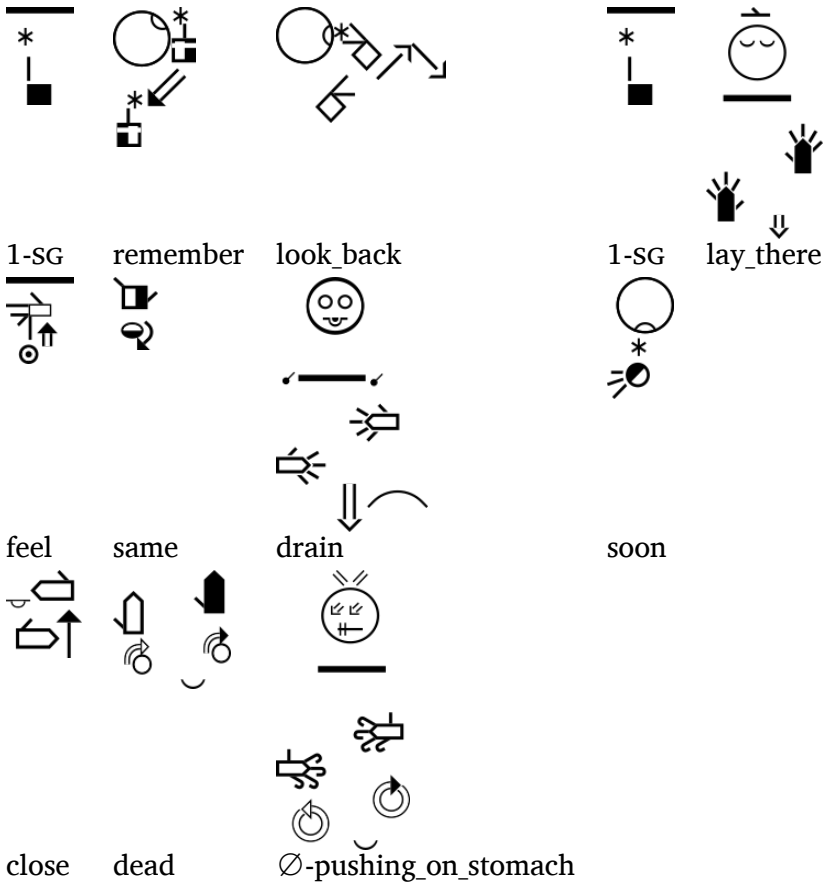
There were only three tokens of null arguments in constructed action that could be coded within the methodological parameters of this study. All of these took place within mentally rotated space: one which was coded as In Focus, one which was coded as Activated and one which was coded as Uniquely Identifiable. This scattered distribution of statuses does not seem to corroborate Swabey's claim that null arguments of constructed action signal In Focus. One of the issues with analyzing constructed action as a referring form is that it is actually a discourse strategy within which various types of referring forms occur. It does not have a specific form associated with it, but it could potentially license null referents. Another issue is that some aspects of constructed action are so close in pattern to constructed dialogue, which is not coded. The three cases coded in this study, were coded because I was able to follow the references made within the constructed action itself. Other references outside the constructed action section could not be coded if I omitted these references from my analysis. (See 3.4.1 for more discussion on the reasons for omitting some cases of constructed action.)

The first two coded examples of constructed action take place in a narrative within the larger discourse. For ease of understanding of the examples, I am including a free translation of the story which is found beginning at (C3:26).

> Now understand, that I have experienced pregnancy twice myself. Was pregnancy easy? No. I was very close to death! With my firstborn son, [I] had uncontrolled bleeding. A team of doctors rushed to me and started working on my stomach. I remember as I look back, I laid there, limp. [I] felt like I was drained and would soon die. [The doctors] pushed on my stomach. Could I even protest? No, [I] just lay there. [The doctors] pushed on my stomach frantically trying things. Finally, the bleeding stopped. [I] slowly recovered my health.

The first coded case of constructed action with a null referent takes place in C3:51; here, example (17) is coded as at most Activated referent. The null is the subject of the verb glossed as '∅-pushing_on_stomach.' We assume from the larger established context of the narrative that the doctors are the ones pushing on her stomach. This constructed action takes place in mentally rotated space as evidenced by the lack of body shift when the narrator assumes the role and facial expression of the doctors pushing on her stomach. The reference to the doctors is never explicitly stated and the previous sentence relates only to the narrator's feelings about her experience. Therefore, according to the coding protocol, this referent is at most Activated, since it is an entity that is part of the interpretation of one of the two previous sentences; this, however, conflicts with the claim that the most minimal form (a null) should be correlated with the highest status in the Givenness Hierarchy.

(17)



1-SG remember look_back 1-SG lay_there

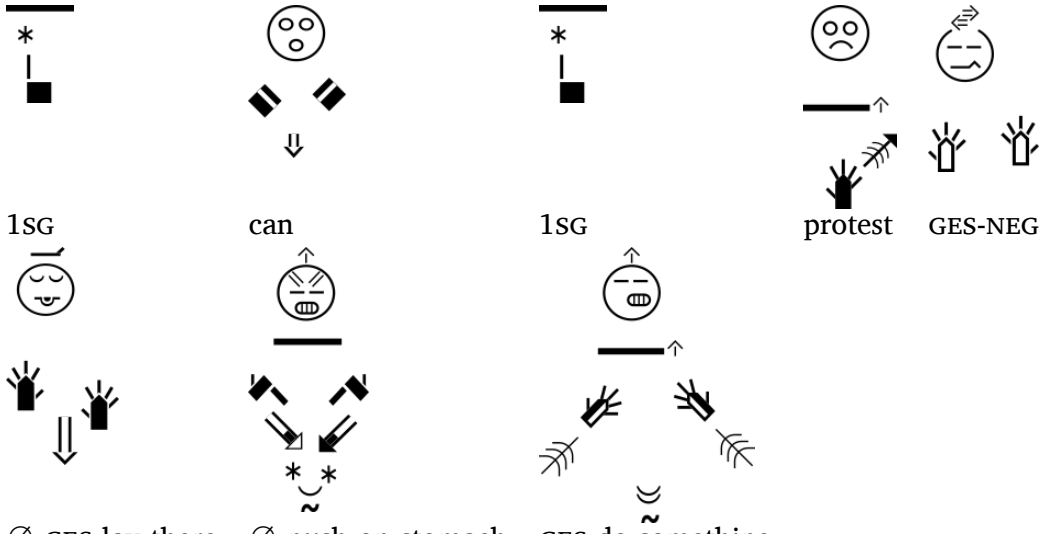
feel same drain soon

close dead ∅-pushing_on_stomach

'I remember as I look back, I laid there, limp.
[I] felt like I was drained and would soon die. [The doctors] pushed on my stomach.'

The second example of a null argument within constructed action is from this same embedded narrative and is found in example (18) (C3:56). This example displays the sentences which follow example (17) in the text. The constructed action contains '∅-push_on_stomach' and its null argument is coded as In Focus. It is important to note that in the free translation for this story, the English sentences “Could I even protest? No, I just lay there.” are actually one sentence in ASL. It is a rhetorical construction which is one sentence in two clauses. Therefore, the doctors were part of the null two sentences before (the last clause of (17)), and she "protests" to them in the sentence of (18). Since the doctors were part of the two sentences previous, it is coded as In Focus.

(18)



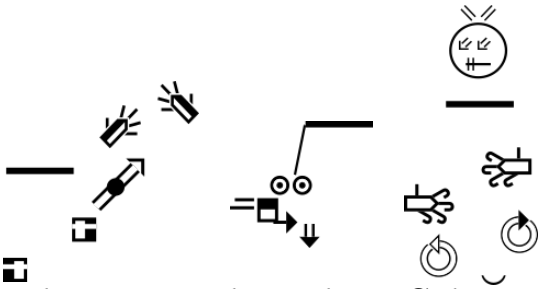
1SG can 1SG protest GES-NEG

∅-GES-lay_there ∅-push_on_stomach GES-do_something

'Could I even protest? No, [I] just lay there.
[The doctors] pushed on my stomach frantically trying things.'

There is also a case of constructed action within mentally rotated space which is from the same speaker, though this is included in a different embedded narrative. The null argument in (19) from C4:15 which is glossed as '∅-do_something_on_stomach,' is coded as at most Uniquely Identifiable. In this example, the narrator relates the story of the birth of her twins (a different birth experience than examples (17) and (18)). She experiences complications at seven months pregnant and rushes to the hospital. Because we know that the narrator is at the hospital, we know that the people working on her are the hospital staff, much like we would know that in the sentence "After we arrived at the restaurant, **they** showed us to our table," the "they" refers to the waitstaff/hosts of the restaurant. This null is successful, although it is minimally coded, because the context of the hospital brings the schema of hospitals to the addressee's mind. It is, however, unusual in the research on referring forms to see a null argument used as a bridging reference (which connects the schema of a hospital to the referent). This bridging according to the protocol makes the referent at most Uniquely Identifiable though it is minimally coded. Note that this example might have been dismissed as being a non-referential "they" were it not for the specificity of the hospital (see Gundel et al. (2010:283) for more discussion on generic references).

(19)



rush hospital ∅-do_something_on_stomach

'...[we] rushed to the hospital. [They] started working on my stomach...'

Examples (17) and (19) are both cases of null references made using constructed action which were not coded as In Focus contrary to predictions. The case in (17) has extra spatial marking which helped the audience pick out the intended referent, and (19) is a semi-specific referent that is part of a bridging reference. Example (18) was coded as In Focus, but was the only token in the data which follows the prediction of Swabey (2002:66). Although nulls in constructed action appear as a category of reference in the descriptions of both Swabey (2002) and Frederiksen & Mayberry (2016), this form is not claimed to signal cognitive status. It may be that grouping constructed action together as a category is not a useful way to study the referring expressions which appear on elements produced within constructed action.

4.1.4 Null Arguments of Classifier Predicates

My data contained 16 null arguments of classifier predicates coded as In Focus as well as one coded as Familiar and one coded as Uniquely Identifiable. Four tokens were placed in the Referent Undetermined Category. Semantic classifiers do seem to be used only in In Focus contexts. SASS and Handle classifiers did not appear much in my data (see Table 11 for the distribution), but do not seem to require referents which are In Focus.

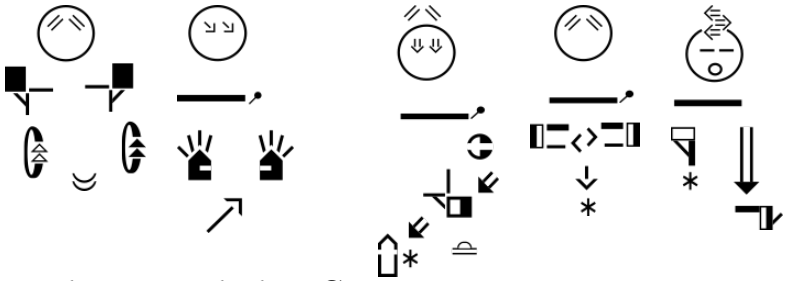
Following Frederiksen & Mayberry (2016), I separated classifier predicates into three categories: SASS, Handle and Semantic. All but two classifier predicates found in my data were Semantic so I have simplified the category to include all classifier predicates in Table 8. A distribution of the three categories appears in Table 11.

Table 11. Distribution of classifier predicates

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
∅ **Classifier-SASS**				1				1
∅ **Classifier-Handle**			1					1
∅ **Classifier-Semantic**	16						4	20
Totals	16		1	1			4	22

An illustration of a referent of a classifier predicate which was coded as In Focus is found in example (20) (C2:53). The classifier predicate 'CL-look_at-∅' references Clinton, who has been placed to the right and referred to in the previous sentence. This is coded as In Focus because Clinton was the subject of the previous sentence. This is a case which uses spatial marking, which also makes the referent absolutely clear.

(20)

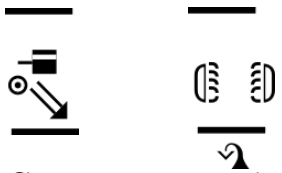


people CL-look_at-∅ approve accept GES-NEG

'Do people see [her] and are approving and accepting? No.'

The first of the cases in which the referent was coded lower than expected for a null argument is in (21) (C4:29). The referents illustrated in this example are the twins which are glossed as the null in 'CL-take_∅_out' and coded as at most Familiar. This uses a handle classifier depicting the doctor delivering two babies at the same time. At the beginning of the story the speaker mentions that she was pregnant with twins. They are mentioned one other time with the sign 'baby,' but are not mentioned in the two sentences previous to this and thus cannot be coded as Activated or In Focus.

(21)



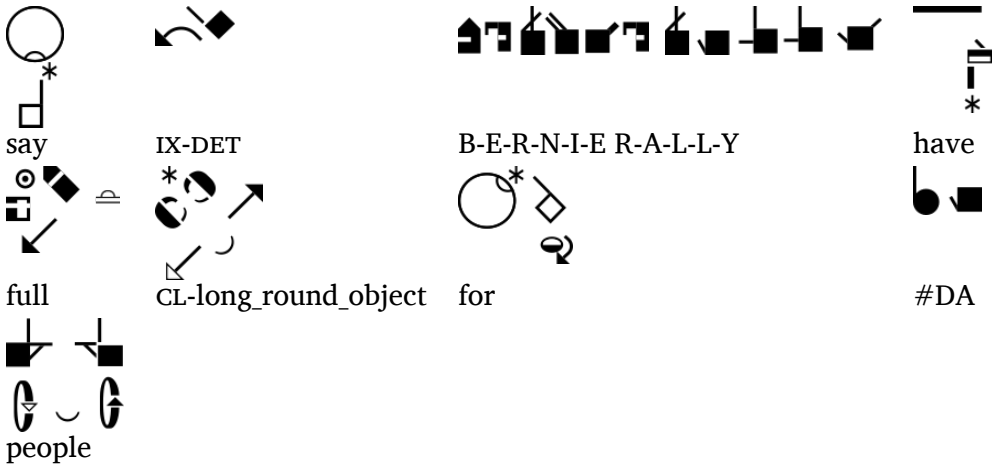
∅-c-section CL-take_∅_out

'[They] performed a c-section and took [the twins] out.'

The SASS classifier coded as at most Uniquely Identifiable is found in A3:57, (22) glossed as 'CL-long_round_object' is found at the Bernie Sanders rally. He describes this item as being for disabled people which leads us to believe it is a row of seats though that is not explicitly stated. The use of space and the context of the rally allows us to

understand the classifier predicate despite the referent not being previously mentioned or In Focus. This classifier predicate is coded as Uniquely Identifiable because it contains enough information within the context to create a unique referent via a bridging reference Gundel et al. (2006).

(22)



say IX-DET B-E-R-N-I-E R-A-L-L-Y have

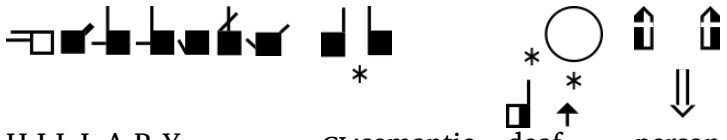
full CL-long_round_object for #DA

people

'[He] said at the Bernie (Sanders) rally there was a full [row] for people with disabilities...'

Of the four cases where the referents with classifier predicates were undetermined, one was an instance of cataphora and three were cases of generic reference. These cases help to illustrate some of the issues in applying the coding to classifier predicates. The case of cataphora is illustrated in example (23) (A1:24). It is coded as cataphora because the classifier predicate references the Deaf person along with Hillary before the Deaf person is mentioned individually later in the sentence. I did not code this example as a classifier predicate plus noun phrase because the classifier predicate also referenced Hillary Clinton who was specified.

(23)

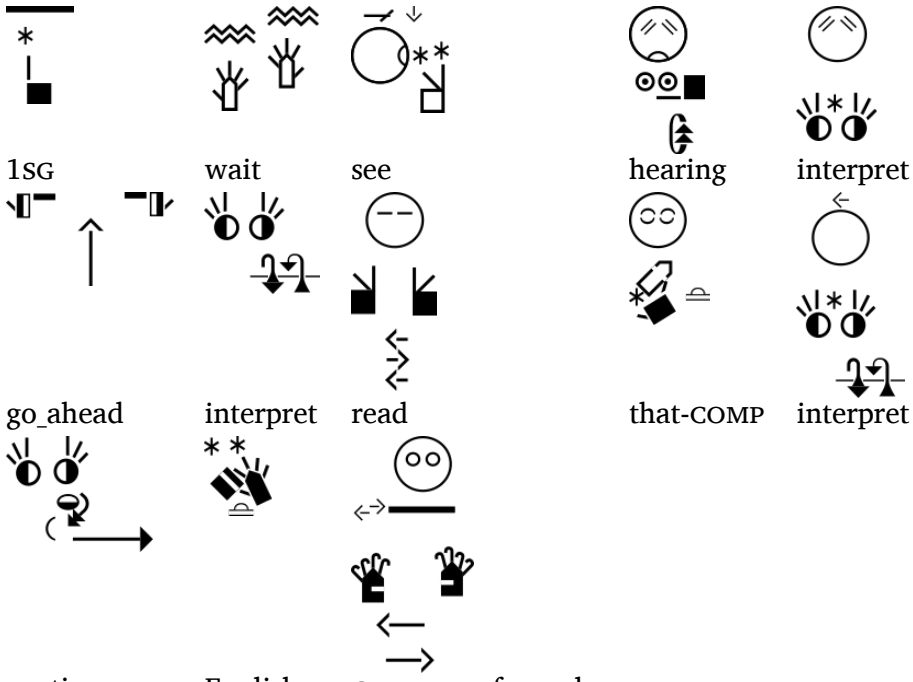


H-I-L-L-A-R-Y CL:semantic deaf person

'...Hillary with a Deaf person.'

The second case of Referent Undetermined appears in (C0:33) as a null on a semantic classifier predicate, 'CL-group_of_people' illustrated by example (24), which refers to a group of people. This particular classifier predicate is often used to indicate a crowd of people. It could be used to indicate other things, but rarely does. This classifier predicate was used in the introduction of the VLOG and refers to the general Deaf population. Since it is non-specific and was not previously introduced, the coding is undetermined.

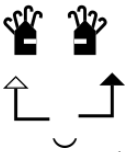
(24)



'I wait to see if the hearing interpreters will go ahead and interpret.
[I] intently read that interpretation and captioning in English.
[Deaf people] look on intently.'

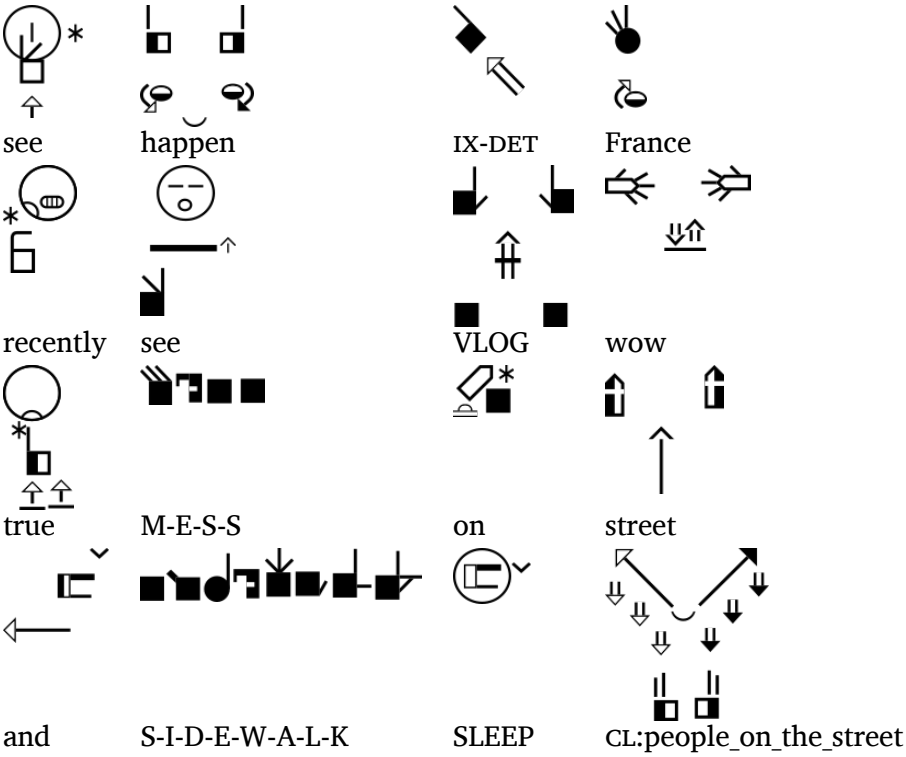
Example (25) (B4:50), uses the same classifier, but the movement is slightly different; example (25) arcs around in a semi-circle and example (24) move both hands back and forth together. Both of these classifier predicates were produced without a reference or anything to give the classifier predicate specificity, making them both undetermined following the approach to generic referents.

(25) 



CL-crowd_of_people
A group of people

In (B4:12) example (26), the classifier predicate glossed as 'CL-people_on_the_street' is the first overt reference to the refugees in France. The overarching themde is about refugees and the referent is part of the interpretation of the previous sentence. This could be considered a higher level topic and therefore, the referent would be coded In Focus according to criterion two. However, the lack of specificity from the classifier predicate causes this example to be undetermined, based on the way non-specific references are treated in this study.

(26) 

see happen IX-DET France

recently see VLOG wow

true M-E-S-S on street

and S-I-D-E-W-A-L-K SLEEP CL:people_on_the_street

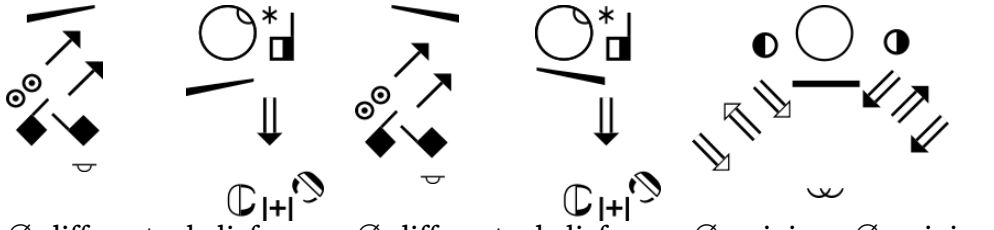
'Look at what happened in France recently. Watch a VLOG wow. It's truly a mess on the streets and sidewalks. [People] are sleeping all over the streets.'

These undetermined cases for null references on classifier predicates are all successful references, though they are not coded as In Focus which the model would predict is normal for nulls/minimal forms. It seems from my data, classifier predicates do not need accompanying words or phrases to help the audience understand how to interpret the classifier, if the classifier predicates are representing general entities or entities recoverable from context. This helps illustrate the premise proposed by S. Jones (2013) that classifier predicates are procedural lexical items, since the reference of classifier predicates would need to be specified only if the information encoded in the procedural markings were not specific enough to identify the referent. It is also worth noting that the null arguments found with semantic classifier predicates pattern similarly to agreement verbs, and may not need to be a separate category of referring expression.

4.1.5 Other Null Expressions

The category of ∅-other included 14 cases of references determined to be In Focus, with no cases in any other cognitive status. The majority of cases within this category are attributive clauses that are not normally considered referential, but which become referential with the addition of spatial marking. Spatial agreement can help the audience narrow down the list of possible referents to find the correct one, but it is not a "null" licensed by adjectives. The forms of this category are not referential if the spatial marking is not there, and therefore, this category is not considered to be one which can signal cognitive status. For more on the description of this category or the labeling of the category see section 2.3.1.5.

In example (27) (B1:22), which is a case of using spatial markings to reference entities, the speaker produced 'different' and 'beliefs' on the left and then again on the right. Trump is established two sentences previously on the left, and Clinton on the right. The sentence immediately prior to this example uses these spatial references, which helps maintain the referents as In Focus. These are therefore coded as In Focus, based on the criterion of being part of the interpretation of each of the two previous sentences.

(27) 

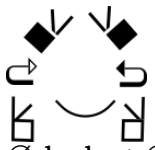
∅-different belief ∅-different belief ∅-opinion~∅-opinion

'[Trump] has different beliefs and [Clinton] has different beliefs
and [they both have] opinions.'

4.1.6 Simultaneous Referencing

Simultaneous referencing utilizes spatial markings to make references to two individual entities (or separate groups) at the same time. These spatial markings add information not found in true nulls. Spatial agreement is contextually established and it appears to be maintained during the discourse to achieve maximum efficacy. It is theoretically possible then in simultaneous referencing, for a signer to be absolutely clear with references that are not necessarily In Focus because of the added spatial information. However, in my data, this does not occur. All simultaneous references appear to require both entities to be In Focus with the exception of one cataphoric reference found in example (29), which falls in the category of Coding Undetermined.

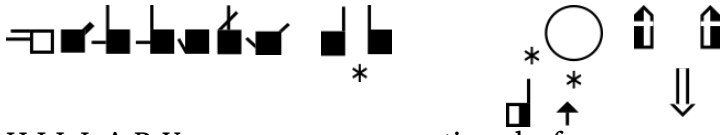
This category does not appear as a type of referring expression which can be coded; rather all examples appear elsewhere in their respective forms. Example (28) (B2:02) is coded as is an agreement verb, and is a typical example of using spatial marking to reference more than one entity at the same time. Clinton and Trump were set up in the previous sentence on the left and the right respectively, so she was able to produce this verb in both spaces, referencing both Clinton and Trump at the same time. Since these were mentioned in the previous sentence as the syntactic focus of that sentence, both references can be coded as In Focus.

(28) 

∅-look_at-∅-and-∅

[I] will look at [Trump] and [Clinton].

Example (29) (A 1:24) is coded as a classifier predicate and has simultaneous referencing on the classifier construction when two semantic classifiers are used side by side to indicate two different people. Hillary is mentioned earlier in the same sentence and is In Focus. The other entity represented by the semantic classifier is the Deaf person mentioned immediately afterward. This is a cataphoric reference and therefore makes the referent undetermined, but it does not take long to resolve. This is the only case in my data in which both simultaneous references are not In Focus.

(29) 

H-I-L-L-A-R-Y CL:semantic deaf person

'...Hillary with a Deaf person.'

4.2 Pronouns

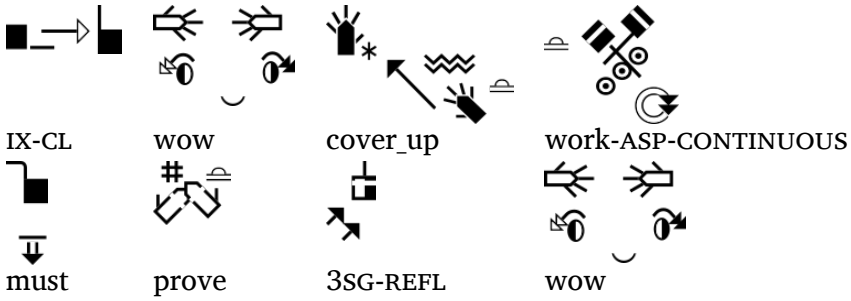
Pronouns comprise four different categories in my data: pronouns (non-indexing), indexing which functions as a pronoun (IX-PRO), and two distinct demonstrative pronouns. The term pronoun (non-indexing) is used for other types of pronominal reference such as plural personal, reflexive and possessive. IX-PRO consists of all the indexing which patterns like a pronoun and is not accompanied by a noun. Demonstrative pronouns consist of an indexing demonstrative, which is glossed as 'this' and a pronoun using the "y" handshape, which is glossed as 'that.'

4.2.1 Pronouns (Non-indexing)

For the category of non-indexing pronoun, 26 references were coded as at most In Focus and one was coded as at most Activated. I propose non-indexing pronouns as a form which signals In Focus, and I treat the one Activated case as one which is likely to be In Focus though there is no criteria of the protocol by which it can be coded as such.

Example (30) shows a reflexive pronoun glossed '3SG-REFL' found at C2:35, with a referent that is coded as In Focus. The reflexive pronoun was directed towards the right

which is the space established for Clinton in previous sentences and maintained by the indexing of the classifier at the beginning of this sentence.

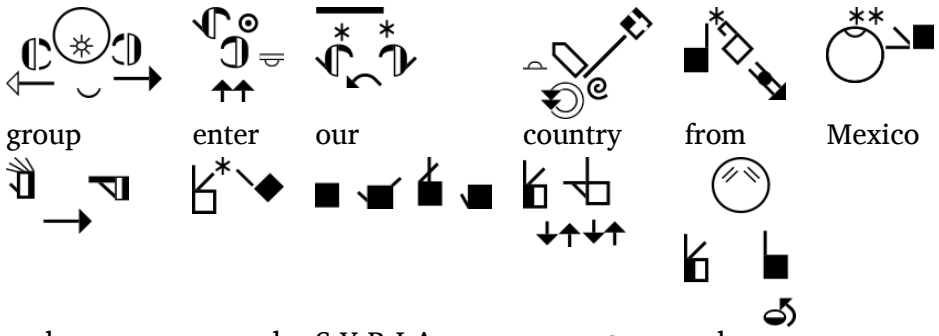
(30) 

IX-CL wow cover_up work-ASP-CONTINUOUS

must prove 3SG-REFL wow

'She--wow--has been continuously working and must still prove herself, wow!'

The one instance of an Activated referent for this category is a dual pronoun illustrated in example (31) (B3:49). It is at most Activated according to the protocol because it references two entities which were a part of the previous sentence, but not syntactically prominent (embedded in a prepositional phrase). The dual pronoun references both Mexico and Syria as both appeared together in the same noun phrase and are therefore seen as a group. Even though Mexico and Syria have been introduced together just before the use of the dual pronoun, the criteria of the protocol only allows the dual pronoun to remain coded as at least Activated, because it was not used in a position of syntactic prominence. However, the mention is the information focus of the previous sentence and so recent that the referent could be in focus cognitively, even though there is not definitive evidence cross-linguistically that syntactic positions besides subject and the syntactic focus position of the previous sentence, can bring a referent into focus (Humnick, personal communication). Following the coding protocol, it is coded as Activated, though the actual cognitive status is likely to be In Focus.

(31) 

group enter our country from Mexico

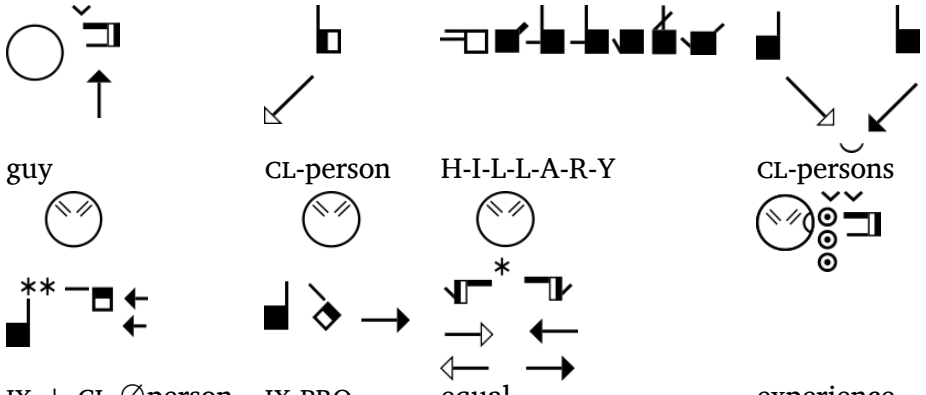
and second S-Y-R-I-A DU-PRO only

'People enter our country from Mexico and also Syria. These two only?'

4.2.2 Pronominal Use of Indexing (IX-PRO)

Of the 40 tokens categorized as IX-PRO, 38 references were coded as In Focus, two references were coded as Activated and one reference was coded as Referent Undetermined. I propose IX-PRO as a form which signals In Focus, though there do appear to be anomalies in my data, which will be explained in this section.

Example (32) (C2:23) is representative of the large number of referents of IX-PRO that are In Focus. The IX-PRO refers to Clinton, who is mentioned earlier in the sentence, making this referent In Focus.

(32) 

guy CL-person H-I-L-L-A-R-Y CL-persons

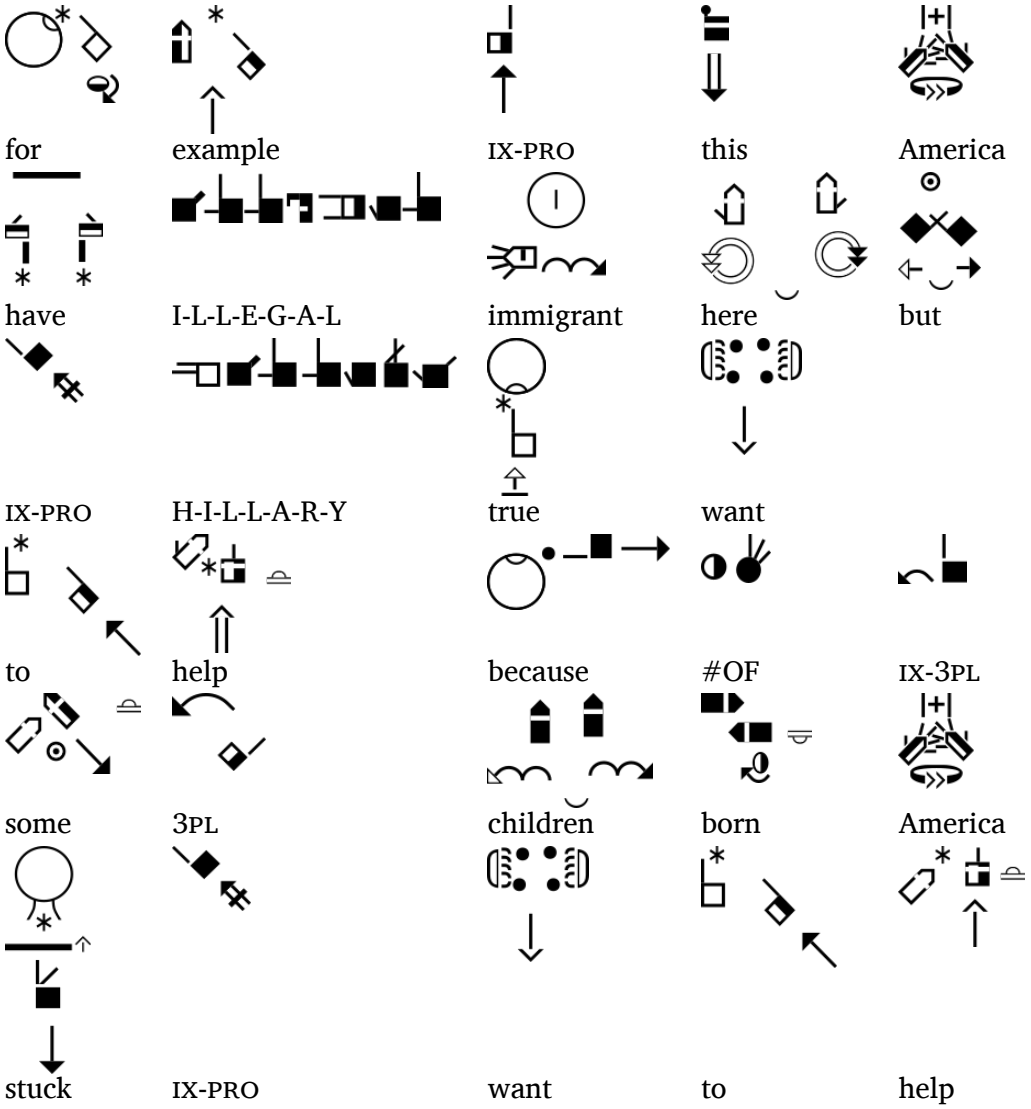
IX + CL-∅person IX-PRO equal experience

'The guy and Hillary are [his] and her experiences equal?'

Since there are two Activated cases, which might bring into question whether this form can be said to signal In Focus, I discuss each of these cases in detail. In (33) (D3:07), the final IX-PRO is coded as at most Activated. This indexing is a reference to Clinton, who is the subject of a clause which occurs two clauses before the pronoun reference,

but is not the subject of the immediately preceding clause or the sentence as a whole. In this example, Hillary is mentioned the first time (IX-PRO H-I-L-L-A-R-Y) as someone who wants to help. On the second mention, which is the reference in question, she is mentioned again as someone who wants to help. This parallelism in presentation can help license a minimal form, even if the referent is at most Activated according to the coding protocol (Humnick 2009:54). Moreover, the added spatial agreement indexing provides, combined with parallelism, allows the referent to be understood though it is not In Focus.

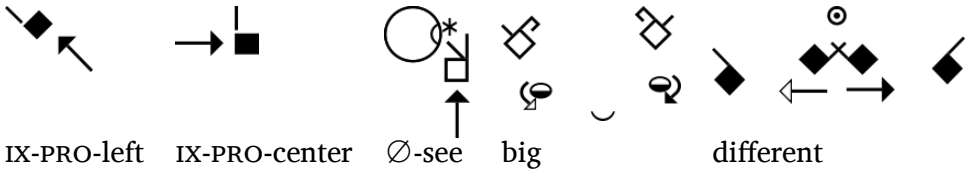
(33)



'For example, here in America, [we] have illegal immigrants, but Hillary truly wants to help. Because of some of these children born in America are stuck. She wants to help...'

The other referent coded as at most Activated is the second IX-PRO (center), which refers to the Trump rally, illustrated in example (34) (A4:56). The free translation for the two preceding clauses is, "But the point is that a Deaf person, he went to a Trump rally (there) and there were no interpreters, none. As it happened, in another case, he went to the Bernie rally and they had interpreters." The indexing in (34) spatially references the Trump rally which was established in that location two sentences before. This makes the referent part of the interpretation of one of the two preceding sentences, but not mentioned in the previous sentence. The intervening sentence contains a reference to Bernie Sanders' rally, which may have sustained the cognitive status of the previously mentioned rally, though it is still at most Activated according to the coding protocol.

(34)



IX-PRO-left IX-PRO-center ∅-see big different

'Between the Bernie rally (left) and the Trump rally (center)
[you] can see a big difference.'

The data for the IX-PRO category also includes one referent for which coding is undetermined. This case references women in general and how they have been historically oppressed by men. The speaker uses a "different voice" to highlight the oppression by talking as if she were a man describing women as emotional and crazy. This reported thought follows similar patterns to reported speech and constructed action and is therefore undetermined.

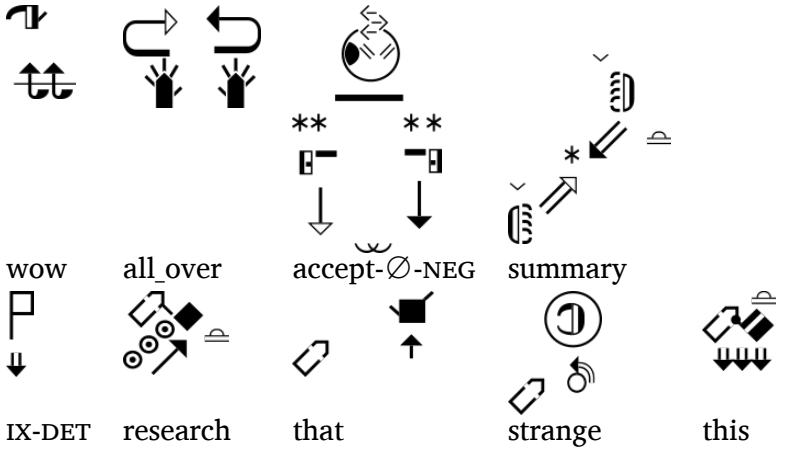
Although two examples of referents are coded as at most Activated according to the protocol, these two references have features which help sustain the references enough to make them not only unambiguous, but likely In Focus. Any future research with questionnaires would need to carefully test IX-PRO to determine whether these anomalies are actually the true cognitive status signalled, or they are exceptions to the rule.

4.2.3 'that'

The referents of the demonstrative pronoun 'that' have a distribution of eight In Focus tokens and two Activated tokens in this study. Swabey found four tokens of Activated referents of this form (Swabey 2002:110). This information, combined with the cross-linguistic data of Gundel et al. (1993:284), gives evidence to support the claim that the demonstrative pronoun signals at least Activated status in ASL.

One example of a referential 'that' coded as Activated is example (35) (C3:09). The context of this sentence is that Hillary has been a politician for many years and has a lot of experience. In the speaker's opinion, it is odd that she has done so much but isn't accepted as a qualified candidate. The form 'that' in this sentence refers back to the fact that she is not widely accepted, which is mentioned in the sentence before. This was coded as Activated because it is "a proposition, fact or speech act associated with the event or state denoted by the previous sentence" (Gundel et al. 2006).

(35)



'Wow, they don't accept her (Hillary) all over (the US).
That's odd, [the sum of] this research.'

.

4.2.4 'this'

The demonstrative pronoun I gloss as 'this' correlates with referents that are In Focus three times, Activated twice, and Referent Undetermined twice. I propose this form signals the status Activated. Note that 'this' is not a category found in Swabey (2002).

Example (35) in section 4.2.3 contains a clear example of 'this' as the last sign Speaker C produces. It is produced as an index on her non-dominant hand, but the index is pointed down as a proximal reference.

There is one exception to the description of production of 'this' which is a non-specific referencing of experiences which were parallel between the speaker and Clinton which is illustrated in example (36) (C1:05) as the word glossed 'this_and_this_and_this_and_this.'

(36)

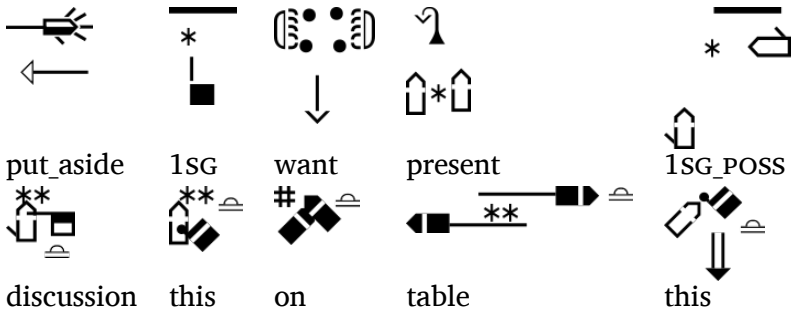
some this_and_this_and_this_and_this oh_I_see

'...some this one, and this one and this one, oh!'

The speaker produces the two indices with her right hand before using her left hand to indicate the two indices on the left. She is talking about individual experiences which are parallel to Clinton's experiences, but she does not specify them any more than that. One of the difficulties in this example is that it seems that this could be an example of a co-speech gesture which is very difficult to separate from lexical items in ASL. 'This_and_this_and_this_and_this' was coded as In Focus as referencing a subset of her and Clinton's experiences which were explicitly mentioned as the focus of the previous sentence.

There are two cataphoric references for this referring form which appear in the Referent Undetermined category, (37) (B0:54 and B0:56). In each of these cases, the cataphoric references point forward to the main topic of the discourse. The speaker is still introducing her video before this sentence, which serves as an introduction to her main topic. She discusses the political platforms of both candidates with two iterations of 'this'. Since this

example takes place at the beginning of the discourse, the use of cataphora is a discourse strategy for introducing the main topic.

(37) 

put_aside	1SG	want	present	1SG_POSS
discussion	this	on	table	this

'Putting that aside, I want to present my discussion of this on the table, this.'

There are also two references which were excluded from the distribution because their production does not follow the given description. One is produced as an index finger moving in a downward circle onto the palm of the non-dominant hand. This is a very English influenced sentence and was originally coded as at most Familiar. The second token which is excluded seems like it could be glossed as 'this candidate or this candidate' or it may be 'him or her'. This sign was also produced similarly to the IX-PRO and cannot be coded since the exact referent is difficult to determine.

My data appears to indicate that 'this' signals at least Activated, though there are only a few tokens. Many of the proximal demonstratives in the languages studied previously correlate with at least Activated (Gundel et al. 1993:284; Gundel et al. 2010).

4.3 Demonstrative Determiners

For the demonstrative determiner IX-DET + N, this section compares my analysis with that of Swabey's dissertation, as well as providing the analysis for an additional demonstrative determiner 'that' + N which occurs in my data.

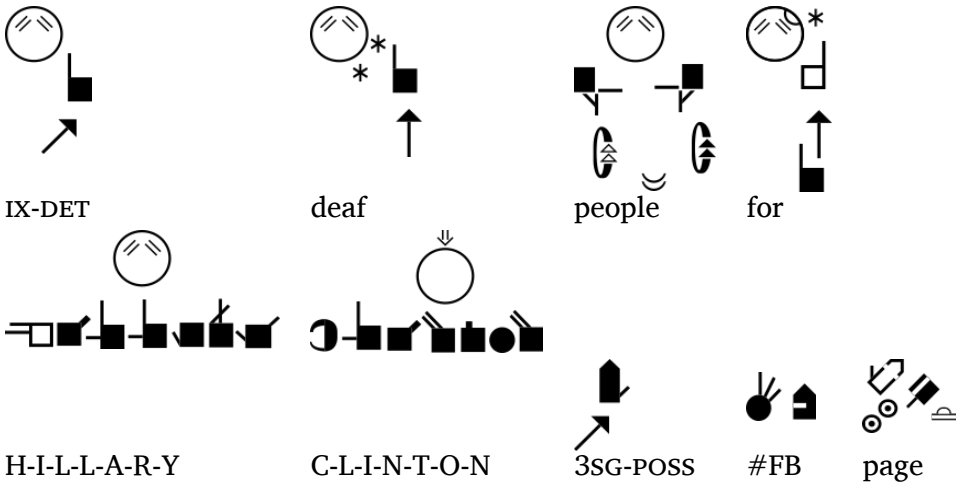
4.3.1 Indexing Demonstrative Determiner

Swabey hypothesized that since IX-DET + N is the only definite determiner for ASL and is not obligatory, it would pattern as a demonstrative determiner and signal at least Familiar, and her coding of tokens in the data corroborates that hypothesis (Swabey

2002:50). In my data, however, I find that demonstrative determiners correlate with several referents that are at most Uniquely Identifiable. I follow the description from Neidle et al. (2000) which is cited by Swabey (2002:49) for separating determiners from what they call adverbial locatives based on the position of the determiner preceding the noun and the locative following the noun, but it should be noted that this resulted in coding some data as a determiner that I would have called a locative from my own intuitions. Nonetheless, using this description of indexing, the data shows a pattern consistent with cross-linguistic patterns of demonstrative determiners, which was untrue when I tried separating indexed determiners on my own intuition. My data supports the idea that indexing followed by a noun results in a determiner phrase. The tokens in my data consist of four referents coded as In Focus, two referents coded as at most Activated, seven referents coded as Familiar, and three referents coded as Uniquely Identifiable for a total of 16. This does not support Swabey's claim that IX-DET + Noun signals Familiar, so it seems best to propose that the referring forms of this category signal Uniquely Identifiable.

The key evidence supporting this claim are the three examples coded as at most Uniquely Identifiable. The criteria for coding referents as Familiar are as follows: 1) It was mentioned at any time previously in the discourse or 2) It can be assumed to be known by the hearer through cultural/encyclopedic knowledge or shared personal experience with the speaker.[5]

(38)



'The Deaf People for Hillary Clinton, their Facebook page...'

[5] There was no difference in the coding protocol which Swabey used and the protocol I use for these statuses.

Example (38) is found at A1:18 and is the first example of IX-DET + N. The referent of 'Deaf People for Hillary Clinton,' the name of a political group, is coded as Uniquely Identifiable, since it is the name of a political group. The signer raises his eyebrows for the full length of the name and nods his head as he spells Clinton signaling the end of the phrase. Since the whole phrase is the name of a particular group, there is enough information to identify the specific reference. This is the first mention of this particular referent, and it is not assumed to be part of shared cultural knowledge, so it cannot be coded any higher.

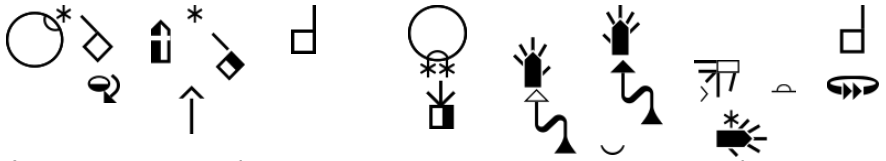
(39) 

IX-DET daily B-E-A-S-T article say

'The Daily Beast article says...'

In A2:02.5, the referent of IX-DET + N (The Daily Beast) is coded as Uniquely Identifiable, as this is the first mention and enough information is given to create a specific reference to a specific entity. The phrase introduces a proper name, which is an online news article and the source of the information he is about to share. Since this is the first mention, and it is not assumed to be part of shared cultural knowledge as the audience may never have heard of this news source, it cannot be coded as Familiar.

At D5:15, the referent of IX-DET N that is at most Uniquely Identifiable introduces the ocean (40). It references the general ocean which is "adequate descriptive content [for the audience] to pick out the specific referent" (Gundel et al. 2006). This is the first mentioning of the ocean and it is descriptive enough to be Uniquely Identifiable. There is a possibility that other coders may consider a reference to "the ocean" to be Familiar as it is a known element of the earth. It may be considered Familiar on the basis of being part of cultural knowledge though a specific ocean is not named. Nevertheless, I have coded it as Uniquely Identifiable as it is not specifically named. Were it to be given a name, it would be automatically introduced as at least Familiar, regardless of the context of the conversation on the basis that it is part of shared cultural knowledge.

(40) 

for example IX-DET water waves stick something

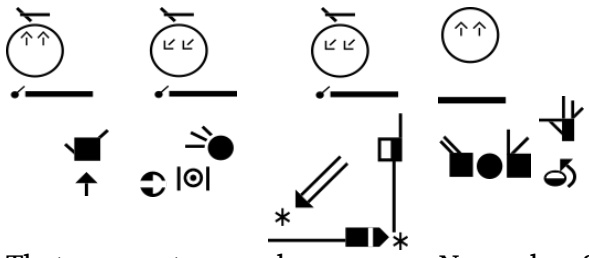
'For example, when the ocean has some type of pollution...'

These three examples present evidence that the IX-DET can be used in cases that are at most Uniquely Identifiable. This patterns with definite determiners in other languages including English (Gundel et al. 1993).

4.3.2 'that' + Noun

There is an additional demonstrative determiner: 'that' + N, but it has a very narrow distribution. There are four referents coded as In Focus and one coded as Uniquely Identifiable for a total of five tokens. I am tentatively proposing 'that' + N to require its referents to signal Uniquely Identifiable. Chinese and Ojibwe have similar determiners that are used with referents that are at most Uniquely Identifiable (Gundel et al. 1993:285; Gundel et al. 2010:1776), so this analysis is at least plausible.

Example (41) below (B1:32) demonstrates this demonstrative determiner. 'That election day' references the election day which fell on November 8th (2016). Intuitively, it seems to be a typical use of 'that' + N, referencing a day which is Uniquely Identifiable. This is the first mention of the date, and though it can be considered cultural information, the speaker was not assuming that the audience knew it; thus it cannot be coded any higher than Uniquely Identifiable.

(41) 

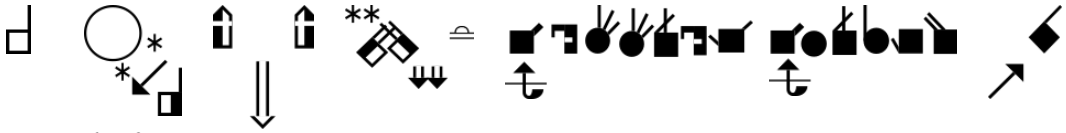
That vote day November_8th

'That election day, November 8th...'

4.4 Indefinite Articles

The signs 'one' and 'something' N correlate to Type Identifiable according to Swabey (2002). I do not have many more tokens in the 'one' and 'something' category than Swabey did, but my data do not contradict her in this respect. In my distribution of statuses, I only have one out of eight tokens in the Type Identifiable category. One token is coded as In Focus, five referents are coded as Uniquely Identifiable, and one is coded as Referential, as well, which is a wide distribution. 'One' is a combined label of forms from the categories: 'one' + N, 'one' + N + IX, and 'one' + fingerspelling. 'One' only occurs prenominally for referencing; 'one' postnominally is an ordinary numeral and is not coded as a form which can be referential, since numbers modify rather than refer. I only have one token of 'something' (40) in all my data. This study concludes that fingerspelling behaves similarly to nouns which makes 'one' + fingerspelling similar to 'one' + N, and the addition of indexing postnominally makes the indexing a modifier of the noun rather than a determiner. Thus, the combination of these categories does not skew the data. Though the distribution is somewhat limited, it seems reasonable to conclude with Swabey that these forms signify Type Identifiable.

Example (42) was one example classified as 'one' N IX (the fingerspelling is included in the noun phrase in this case). This appears in A0:36 and introduces Jeffrey Jordan, whose experiences are later shared in the video. This phrase was coded as Uniquely Identifiable, as the mention of the name and his connection to the Deaf community are enough to clearly identify him. This is the first mention of him and he is not necessarily a household name within the larger North American Deaf community, so he cannot be coded any higher than Uniquely Identifiable. This is all considered one phrase because the facial expressions of the speaker do not change through the entire introduction. There is a clear eye blink and head nod as he indexes at the end of the phrase.

(42) 

one deaf person name J-E-F-F-R-E-Y J-O-R-D-A-N IX

'One Deaf person named Jeffrey Jordan (there)...'

Swabey (2002:144) mentions that her proposed forms for Type Identifiable are not used for referents coded higher than at most Referential, a pattern which I did not find in my data. I had two instances of In Focus and five instances of Uniquely Identifiable. The two instances of In Focus are unusual since the distributions in other languages tend to only use indefinite determiners for less restricted statuses (Gundel et al. 1993:292; Gundel et al. 2010:1777), but even excluding those, there are still five out of eight tokens in the Uniquely Identifiable category[6], a status that is higher than what Swabey claims is typical.

4.5 Categories Removed From Consideration

This study investigated a number of referring forms, several of which were not included in form-status correlation. Some were too few in number to support an analysis. Others were not considered forms which could signal cognitive status as part of their conventional meaning such as constructed action or fingerspelling. I discuss a few in this section and the data for these forms appear in appendix A.

As a part of this study, non-lexicalized fingerspelling was investigated to see if it behaved differently than bare nouns, but the results were inconclusive. The goal for coding fingerspelling was to discover if it was used mostly for introducing entities, but the data was inconclusive in that often, signers would fingerspell names of people, even if they had already been introduced. Fingerspelling was often used for another purpose other than that of introducing a referent. It was also used for maintenance, and entities were frequently referenced without the signer ever establishing a sign for reference (i.e. fingerspelling was repeated). Since fingerspelling was used for multiple purposes, the data did not reveal any clear patterns.

Future studies on the discourse use of fingerspelling may want to separate fingerspelled words into other categories such as common nouns or proper nouns as those may show more patterns. Fingerspelling does not have a specific frozen form which would signal to the addressee that there is a certain cognitive status the referent should satisfy.

[6] It may be important to note that while this is an unusual pattern cross-linguistically, it does not present a problem in working with this theory. Forms which signal Type Identifiable can be used for any status per the unidirectional entailment. However, forms which are associated with the lower statuses are not typically used for the higher statuses as that tends to give the audience more information than is necessary.

Thus, it is not a form which fits the Givenness Hierarchy model well. It should be noted that I considered lexicalized fingerspelling to behave the same as bare nouns and therefore did not code lexicalized fingerspelled words on their own. Phrases with lexicalized fingerspelling included among other fingerspelled words were coded as fingerspelling.

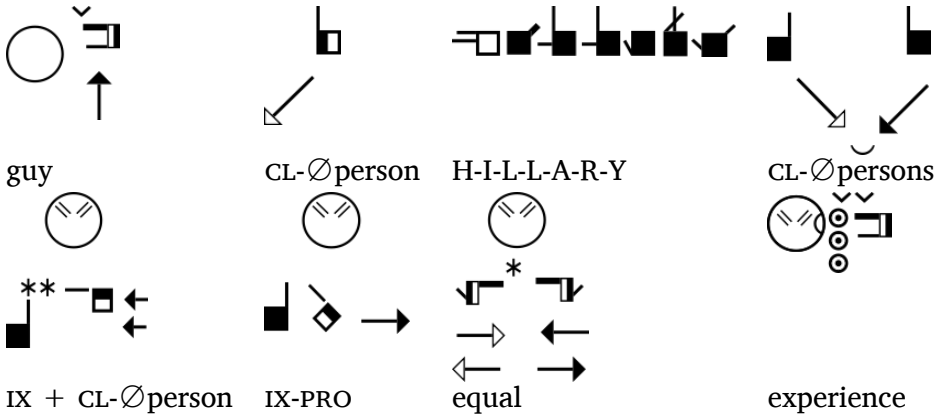
I found that IX + fingerspelling seemed to pattern with referents with at least Uniquely Identifiable status. The variations of IX + FS, FS + IX, IX FS IX, and FS IX N are included in the discussion of this category and the data can be found in appendix A. I am not proposing this as a form which correlates to cognitive status because fingerspelling does not fit the model well in terms of being a form which can signal cognitive status as part of its conventional meaning. Uniquely Identifiable is also the cognitive status I found IX-DET N to correlate with. This does suggest that fingerspelling patterns with nouns in determiner phrases.

Several other categories were removed from the final analysis because there was not enough data to make any claims under this particular theoretical model. These forms are still referring expressions, and should be considered for future research. Some categories removed from consideration were fingerspelling (F.S.) + N, N + F.S. and N + F.S. + N. My data seemed to reveal some patterns, especially that F.S. + N seemed to correlate with referents in a less restricted cognitive status. However the only tokens were from 2 speakers. One speaker was responsible for the tokens of N + F.S., and N + F.S. + N and another speaker was responsible for all the tokens of F.S. + N. For this reason, any claims would be premature. The variation of structure and word order in these forms makes it difficult to find patterns that correlate with cognitive status. For more details on the distribution of these forms, see appendix A.

I only found four examples of Index Classifier (IX CL), all of which had referents which were In Focus. It seems reasonable to say that it patterns like a pronoun. However, I cannot propose it to be a form that is restricted to use with In Focus due to the lack of research using speaker judgement. Given that the majority of tokens found in this study correlate to In Focus, it is possible that these 4 tokens could all have the same cognitive status by chance. Native speaker judgement would be able to more accurately show what is happening. These were all cases of pointing to an entity classifier which seems to

emphasize the classifier. It is a form that could easily be replaced by a pronoun, and may be better analyzed as a classifier buoy.[7]I do not formally add it to my proposal, but future research may confirm that this form correlates to In Focus.

(43)



'The guy and Hillary are [his] and her experiences equal?'

An example of this referring form, shown in (43) (C2:23), shows the index pointing to the classifier established as the 'guy' (Donald Trump) and is followed by an indexing of the space set up for Clinton. The indexing is an IX-PRO, though it does have a classifier predicate buoy. The dominant hand indexes the space established for Clinton while the non-dominant hand holds the space for Trump.

Classifier plus noun refers to a grouping which includes N + CL, and (non-lexical) FS + CL. This grouping was also eliminated from consideration because of a limited number of forms. There were two tokens of N + CL and one token of FS + CL with referents distributed across three separate cognitive statuses. The lowest status in my data for this form was Uniquely Identifiable, though Swabey (2002:84) found some referents which were at most Referential[8].

The data included two relative clauses: one referent corresponding to Uniquely Identifiable and one referent to Referential. The form which correlated with Uniquely Identifiable began with indexing and would otherwise be coded IX-DET N. This reference would

[7] Buoy is used in this thesis as defined by Liddell (2003:223) as "signs with the weak hand that are held in a stationary configuration as the strong hand continues producing signs."

[8] Swabey does not include data about Classifiers combined with nouns or fingerspelling formally in her form-status correlations. However, within her prose, she indicates that classifiers followed by a noun are found in the Referential cognitive status.

corroborate my findings that IX-DET N patterns more like definite articles than demonstratives. The form correlating with the Referential cognitive status was 'one' plus the relative clause, which does not contradict my data in any way. Since there are only two cases of relative clauses, it is difficult to determine whether they pattern with their forms or should be treated as exceptions. Relative clauses do not normally need to be treated separately; however, these have been kept separate from the rest of the coding in hopes to add to current knowledge on relative clauses in ASL.

Because of relatively free word order in ASL, I ignored the order of two elements in compound referring expressions and coded them the same (for example, N PRO and PRO N are categorized alike). However, categories such as F.S. + N (and the various iterations of this) as well as IX + N, seem to pattern differently depending on word order. It would be interesting to consider whether the cognitive status of referents is different for different word orders, but my corpus is not large enough to investigate this.

CHAPTER 5

FURTHER RESEARCH AND CONCLUSION

This research adds to the literature on cognitive status and referring forms for signed languages in general and for ASL, specifically. The analysis of non-narrative texts increases the number of nulls, pronouns, and demonstratives found and increases the strength of proposed form-status correlations that were originally proposed by Swabey (2002) on the basis of narrative texts, as well as suggesting some new conclusions. The types and frequencies of referring forms in my data are different than in Swabey's data, providing a more complete picture. I have also pointed out possible referring categories for ASL and signed languages which may be useful for future studies.

5.1 Comparison of Swabey's Results

This research corroborates many of Swabey's proposed form-status correlations, with one exception. I cannot confirm IX-DET N as Familiar, but propose it instead to be Uniquely Identifiable. Table 12 shows an adaptation of Swabey's form-status correlations in comparison with this study.

Table 12. Comparison of proposed form-status correlations in Swabey (2002) with the current study

Cognitive Status	Swabey's Proposed Forms	Current Proposed Forms
In Focus	IX-PRO (and other unstressed pronouns), ∅	∅ referents of plain verb and agreement verb; IX-PRO; pronouns (non-indexing)
Activated	'that'	'that,' 'this'
Familiar	IX-DET + N	
Uniquely Identifiable		IX-DET + N; 'that' + N
Referential		
Type Identifiable	'Something'/'one' + N, ∅ N	'Something'/'one' + N

As Table 12 shows, the categories null referents, IX-PRO and other pronouns are found to correlate with In Focus, which is unchanged from Swabey's proposed forms. I propose 'this' as a demonstrative pronoun signaling Activated, reanalyze IX-DET + N as signaling Uniquely Identifiable and propose 'that' + N as a form which signals Uniquely Identifiable as well. I also omit the bare noun as it does not have a form per se, which would signal cognitive status. For this reason, I did not track the bare noun and do not propose any claims for them from my research.

Swabey (2002:145) and Frederiksen & Mayberry (2016:65) found that in ASL narrative, signers disfavored the use of pronouns, preferring instead to use other referring strategies. Of my 318 referring expressions coded in categories relevant to this study, 95 were null forms within various discourse strategies and 68 were pronouns. It seems that their observations apply specifically to narrative discourse.

5.2 Further Research

This study corroborates many of the claims made in Swabey (2002) as well as adding new proposed forms as described in section 5.1. This study also describes many categories of referring forms used in ASL which may help in future research on ASL discourse. The addition of another genre of texts for comparison helps to show patterns in ASL more

clearly as well as to highlight what is unique to the genre of narrative texts. Adding other types of non-narrative texts may help to strengthen this even more.

One of the issues I raise in this study is that spatial agreement is significantly different from nulls and should be analyzed as a separate category in future studies. Most of the exceptions in my data to null referencing included spatial information to help clarify the referent. For this reason, some of the categories of null expressions examined in this study may need to be changed in future research. In particular, classifier constructions may need to be examined as expressions containing procedural information rather than minimally coded entities. Null references made within constructed action may also need to be examined more on the type of referring expression rather than within the framework of constructed action.

Some issues could not be adequately addressed by the coding protocol. Perspective shift is difficult to code because of the lack of established discourse within the story world. Several examples of perspective shift could not be coded, but would present interesting data for discourse analysis and participant reference tracking.

Finally, there have now been two studies on ASL in the Givenness Hierarchy which describe the correlation between referring forms and cognitive status. However, one key component of studies in the Givenness Hierarchy is taking these tendencies and formulating questionnaires which would be given to native speakers to assess the accuracy of the findings in the corpus data. A future study which uses questionnaire data to test the form-status correlations based on corpus data would add to the study of ASL within the Givenness Hierarchy model.

APPENDICES

APPENDIX A

Distribution of Forms

Distribution of Forms

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total[1]
∅ Plain Verb	29						1	30
∅ Agreement Verb	24		1				1	26
Constructed Action Mentally Rotated Space	1	1		1				3
∅ Classifier-SASS				1				1
∅ Classifier-Semantic	16						4	20
∅ Classifier-Handle			1					1
∅- other	14							14
Pronoun (non-indexing)	26	1						27
IX-PRO	38	2					1	41
IX + CL	4							4
'that'	8	2						10
'this'	3	2					2	7
IX + Pronoun	17	1	2		3			23
IX + FS	7	1	6					14
FS + IX	1	1	4	1				7
IX + FS + IX			1					1

[1] The total number of tokens differ between this distribution and the condensed distribution of Table 8. This difference is accounted for in the extra categories shown in this table which do not appear in Table 8.

Distribution of Forms

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total[1]
FS + IX + N		1						1
IX-DET + N	4	2	7	3				16
'that' + N	4			1				5
N + IX-ADV		2	2	3		2		9
IX + N + IX	3	1			1			5
'one' + N	1			2				3
'one' + FS					1	1		2
'one' + N + IX				3				3
Fingerspelling	15		22	2	1	3		43
PRO + N	5	1	2					8
N + PRO	1							1
PRO + N + PRO	1							1
PRO + IX	1							1
PRO + IX + N	1	1						2
CL + N								0
N + CL			1	1				2
FS + CL		1						1
N + FS		1	1					2
FS + N				1	1	1		3
N + FS + N			1					1
PRO + FS + PRO			1					1
'one'	1							1
Relative Clause				1	1			2

Distribution of Forms

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total[1]
Totals	225	21	52	20	8	7	9	342

APPENDIX B

Distribution of Forms for Speaker A

Distribution of Forms for Speaker A

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
∅ Plain Verb	10							10
∅ Agreement Verb	13							13
∅ Classifier-SASS				1				1
∅ Classifier-Semantic	5						1	6
∅ Classifier-Handle								0
∅- other	2							2
Pronoun (non-indexing)	9							9
IX-PRO	16	1						17
'that'	3							3
'this'								0
IX + PRO	4							4
IX + FS	6	1	1					8
FS + IX	1	1	2	1				5
IX-DET N		1		2				3
'that' + N	3							3
N IX-ADV		1	1					2
'one' + FS					1	1		2
'one' + N + IX				3				3
Fingerspelling	10		6	1				17
PRO + IX	1							1

Distribution of Forms for Speaker A

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
PRO + IX + N	1							1
PRO + N	4							4
N + FS		1	1					2
N + FS + N			1					1
Relative clause					1			1
Totals	88	6	12	8	2	1	1	118

APPENDIX C

Distribution of Forms for Speaker B

Distribution of Forms for Speaker B

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
∅ Plain Verb	12							12
∅ Agreement Verb	5							5
∅ Classifier-SASS								0
∅ Classifier-Semantic	2						2	4
∅ Classifier-Handle								0
∅- other	6							6
Pronoun (non-indexing)	8	1						9
IX-PRO	1							1
'that'	3	1						4
'this'							2	2
IX + PRO	2	1	2					5
PRO + IX + N		1						1
IX + FS			4					4
FS +IX			1					1
IX-DET + N		1	2					3
'that' + N				1				1
N + IX-ADV		1		2				3
Fingerspelling	1		2	1	1			5
PRO + N			1					1
Totals	40	6	12	4	1	0	4	67

APPENDIX D

Distribution of Forms for Speaker C

Distribution of Forms for Speaker C

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
∅ Plain Verb	5						1	6
∅ Agreement Verb	5		1					6
Constructed Action Mentally Rotated Space	1	1		1				3
∅ Classifier-SASS								0
∅ Classifier-Semantic	9						1	10
∅ Classifier-Handle			1					1
∅- other	5							5
Pronoun (non-indexing)	3							3
IX-PRO	16						1	17
IX + CL	4							4
'that'		1						1
'this'	2		1					3
IX + PRO	8				3			11
IX + FS	1							1
IX + FS + IX			1					1
IX-DET + N	2		2					4
'that' + N	1							1
N + IX-ADV			1			1		2
IX + N + IX	3	1			1			5

Distribution of Forms for Speaker C

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
PRO + N	1	1	1					3
N + PRO	1							1
N + CL			1	1				2
FS + CL		1						1
PRO + FS + PRO			1					1
Totals	67	5	10	2	4	1	3	92

APPENDIX E

Distribution of Forms for Speaker D

Distribution of Forms for Speaker D

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
∅ Plain Verb	2							2
∅ Agreement Verb	1						1	2
∅ Classifier								0
∅- other								0
Pronoun (non-indexing)	5							5
IX-PRO	4	1						5
'that'	2							2
'this'	1	1						2
IX + PRO	1				1			2
IX + FS			1					1
IX-DET + N			3	1				4
N + IX-ADV				1				1
'one' + N	1			2				3
Fingerspelling			7			2		9
PRO + N + PRO	1							1
FS + N				1	1	1		3
'one'	1							1
Totals	19	2	11	5	2	3	1	43

APPENDIX F

Distribution of Forms for Speaker E

Distribution of Forms for Speaker E

	In Focus	Activated	Familiar	Uniquely Identifiable	Referential	Type Identifiable	Referent Undetermined	Total
∅ Plain Verb								0
∅ Agreement Verb								0
∅ Classifier-SASS								0
∅ Classifier-Semantic								0
∅ Classifier-Handle								0
∅- other	1							1
Pronoun (non-indexing)	1							1
IX-PRO	1							1
'that'								0
'this'								0
IX + PRO	1							1
FS + IX			1					1
FS + IX + N		1						1
IX-DET + N	2							2
'that' + N								0
N + IX-ADV						1		1
Fingerspelling	4		7			1		12
Relative Clause				1				1
Total	10	1	8	1	0	2		22

APPENDIX G

Links to Language Data

My language data is all available from YouTube. I am including links to the videos to clarify any confusion with examples. For each example in the text, the time code and the video label is listed in the prose description.

Speaker A: https://youtu.be/XrIGd4QG4Oc

This video is from a YouTube channel called the Daily Moth which is produced by a college-educated Deaf man as a news blog. He assumes the role of a newscaster, providing information in ASL with a register of neutrality. He appears to be in his thirties and includes photos and videos within his videos as supplements to his stories. This was a special episode devoted to comparing Trump and Clinton with information specific to issues relating to Deaf people and people with disabilities.

Speaker B: https://youtu.be/e03GhZETjSI

This is a vlog produced by a regular vlogger who appears to be in her forties or early fifties. This video is actually 30 minutes long, but was coded from 30 seconds to five minutes and 30 seconds. She discusses several political issues over the course of the video and gives her opinions on the issues as well as the political opinions of the two candidates.

Speaker C: https://youtu.be/ZIZUgU5sBoU

This video was produced by a Deaf woman trying to facilitate conversations in ASL on the current political climate. She entitles the video "The truth about Hillary Clinton" though there is some comparison between Clinton and Trump. She appears to be in her thirties to early forties.

Speakers D and E: https://youtu.be/cyf1ULrk3NE

This video contained two speakers, both female. Speaker D appears to be in her late fifties or early sixties and Speaker E appears to be in her thirties. This video was produced as part of an effort to help with Hillary Clinton's campaign. They produced several videos

comparing the two candidates and encouraging people to vote. This was the first of those videos.

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